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TETRA TECH

Industrial Operations Area

Project Report

Former Naval Air Station South Weymouth
Weymouth, Massachusetts

Naval Facilities Engineering Command
Mid-Atlantic

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Contract Task Order WE11

April 2013

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INDUSTRIAL OPERATIONS AREA

PROJECT REPORT

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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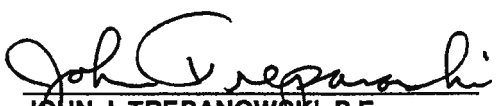

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ACRONYMS

µg/L	micrograms per liter
µg/dL	micrograms per deciliter
ALM	Adult Lead Model
ADAFs	Age Dependent Adjustment Factors
AOC	Area of Concern
AIMD	Aircraft Intermediate Maintenance Division
ATSDR	Agency for Toxic Substances and Disease Registry
BAP	benzo(a)pyrene
bgs	below ground surface
BRAC	Base Realignment and Closure
Cal EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	Chemical of Concern
COPC	Contaminant of Potential Concern
cPAH	carcinogenic Polycyclic Aromatic Hydrocarbons
CSF	Cancer Slope Factor
CTE	Central Tendency Exposure
CTO	Contract Task Order
CVS	cardiovascular system
DABs	Dermal Absorption
DAF	Dilution Attenuation Factor
DOT	Department of Transportation
DPT	Direct Push Technology
DQO	Data Quality Objectives
EBS	Environmental Baseline Survey
EPC	Exposure Point Concentrations
EPH	Extractable Petroleum Hydrocarbons
ERA	Ecological risk assessment
EUs	Exposure Units
FAQ	Frequently Asked Question
GPS	Global Positioning System
HEAST	Health Affects Assessment Summary Tables
HPCDD	Heptachlorodibenzo-p-dioxin
HPCDF	Heptachlorodibenzofuran
HXCDD	Hexachlorodibenzo-p-dioxin

HXCDF	1,2,3,6,7,8-Hexachlrordibenzofuran
HHRA	Human Health Risk Assessment
HI	Hazard index
HQ	Hazard Quotient
IDW	Investigation derived waste
IEUBK	Integrated Exposure Uptake Biokinetic
ILCR	Incremental Lifetime Cancer Risk
IOA	Industrial Operations Area
IRIS	Integrated Risk Information System
IURs	Inhalation Unit Risks
kg	Kilograms
LOD	Limit of Detection
MassDEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCP	Massachusetts Contingency Plan
mg/day	milligrams per day
NAD	North American Datum
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NCEA	National Center for Environmental Assessment
NFA	No further action
OCDD	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin
OSWER	Office of Solid Waste and Emergency Response
PECDD	1,2,3,7,8-Pentachlorodibenzo-p-dioxin
PECDF	2,3,4,7,8-Pentachlorodibenzofuran
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PEF	Particulate Emissions Factor
PID	Photoionization Detector
PMO	Program Management Office
PPE	Personal Protective Equipment
ppm	parts per million
PPRTVs	Provisional Peer Reviewed Toxicity Values
PRGs	Preliminary Remediation Goals
PSL	Project Screening Limit
RAGS	Risk Assessment Guidance for Superfund
RBC	Risk-Based Concentrations

RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RfD	Reference Dose
RME	Reasonable Maximum Exposure
RIA	Review Item Area
ROD	Record of Decision
RSL	Regional Screening Level
RTC	Response to Comments
RTN	Release Tracking Number
SAP	Sampling and Analysis Plan
SB	Soil boring
SDWA	Safe Drinking Water Act
SSL	Soil Screening Level
SSTTDC	South Shore Tri-Town Development Corporation
SVOC	Semivolatile Organic Compound
TCE	Trichloroethene
TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
TCDF	2,3,7,8-Tetrachlorodibenzofuran
TCRA	Time Critical Removal Act
TEF	Toxicity Equivalence Factor
TEQ	Toxic Equivalents
Tetra Tech	Tetra Tech Inc.
TPH	Total Petroleum Hydrocarbon
TSCA	Toxic Substances Control Act
TRW	Technical Review Workgroups
UCL	Upper Confidence Limit
UPL	Upper Prediction Limit
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VPH	Volatile Petroleum Hydrocarbons
WHO	World Health Organization

1.0 INTRODUCTION

This Project Report presents the findings of a field investigation and risk assessment for the Industrial Operations Area (IOA) Site (the Site) located at the former Naval Air Station (NAS) South Weymouth in Weymouth, Massachusetts. The work was conducted by Tetra Tech, Inc. (Tetra Tech), on behalf of the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62472-04-D-1001, Contract Task Order (CTO) WE11 and under the direction of the Base Realignment and Closure (BRAC), Program Management Office (PMO), Northeast.

1.1 SITE LOCATION AND BACKGROUND

Former NAS South Weymouth (the Base) is located approximately 15 miles southeast of Boston, Massachusetts encompassing portions of Norfolk and Plymouth counties and the Towns of Weymouth, Abington, and Rockland, Massachusetts. The IOA is located in the Town of Weymouth as shown on Figure 1-1.

1.1.1 Site Location

The Site covers approximately 20 acres and is located in the central part of the Base, east of the former north-south runway (17-35) and north of the former east-west runway (8-26). The IOA contains: 13 inactive buildings, including the power plant (Building 8), aircraft intermediate maintenance division (AIMD) facility (Building 117) and supply warehouse (Building 2); a water tower; a railroad spur; and a hazardous waste accumulation area. Figure 1-2 presents a site plan depicting the IOA boundary and previously-investigated environmental sites within the IOA. The figure also shows the zoning districts established by South Shore Tri-Town Development Corp. (SSTTDC) for the development of former NAS South Weymouth (SSTTDC, 2005).

The Site is generally flat and mostly covered by asphalt or buildings; there are a few small grassy areas, generally around buildings, and sidewalks. The horizontal extent of the IOA is defined as the outer perimeter of the area where industrial operations took place and is based on information from aerial photographs and previous investigations. Industrial operations in these areas included, but were not limited to: storage of industrial materials, equipment and coal for the power plant; movement of materials by truck and along the railroad spur; and power plant operations. The vertical boundary of the IOA is the water table, which is approximately 8 to 10 feet below ground surface (bgs) at the Site.

1.1.2 Previous Investigations

The Navy has investigated 16 environmental sites within the IOA under various environmental programs, including: 8 Review Item Areas (RIAs) investigated under the Environmental Baseline Survey (EBS) program; 4 Areas of Concern (AOCs) investigated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and 4 petroleum sites investigated under provisions of the Massachusetts Contingency Plan (MCP). The various investigations have led to closure of 12 of the sites with 4 sites remaining active. The environmental sites and their regulatory status are listed below:

RIAs:

- RIA 16, Sewage lift station; closed in 2003
- RIA 33, AIMD Building Shop; active
- RIA 37, Courier Station (Drum Storage Area); closed in 2003
- RIA 78B, underground storage tank (UST) 44 (Building 140); closed in 2003
- RIA 82, Power House; active
- RIA 88, AIMD (Building 117); closed in 2004
- RIA 89, Courier Station (Septic System); closed in 2002
- RIA 106, Fire House (Building 96); closed in 2004

AOCs:

- AOC 13, Soil along Railroad Tracks near Supply Warehouse; Record of Decision (ROD) signed April 2006
- AOC 14, Water Tower, stained soil; active
- AOC 15, Water Tower, lead paint; ROD signed April 2006
- AOC 83, Hazardous Waste Storage Area; active

MCP Sites:

- Aviation Gas USTs (Release Tracking Number [RTN] 3-19064); closed in 2001
- Steam Plant, Building 8 (RTN 3-13157); closed in 2000
- Supply UST, Building 14 (RTN 3-10316 and 3-15350); closed in 1998
- Gas Station, Building 116 (RTN 3-14180 and 3-15516); closed in 1998

Soil and groundwater quality analytical data for the environmental sites listed above were compiled and presented along with other information in the Industrial Operations Area Technical Memorandum (Tetra Tech, 2010). This compilation of existing sample information and analytical data was requested during a Data Quality Objectives (DQO) meeting with the Navy, the United States Environmental Protection Agency (USEPA), and Massachusetts Department of Environmental Protection (MassDEP) to scope an additional investigation of the IOA Site. The information was used by the project team to identify data gaps and assist in scoping a Sampling and Analysis Plan (SAP) (Tetra Tech, 2011b) to support additional

sampling activities at the IOA. The Technical Memorandum determined that the existing groundwater data adequately documented the IOA groundwater conditions and no additional groundwater data collection was required. The SAP therefore focused on collection of surface and subsurface soil samples to address the data gaps identified by the project team.

1.2 SCOPE OF IOA FIELD INVESTIGATION

The focus of the previous investigations at the environmental sites within the IOA was on known or suspected contaminant sources. The objectives of the additional IOA investigation were to address potential low-level dispersed contamination due to the industrial operations in this portion of the Base and assess suspected subsurface contamination remaining from floor drain and potential UST releases (RIA 33 and RIA 82, respectively). The IOA SAP was designed to focus on areas not previously sampled based on a review of the historical dataset and to document the potential presence or lack of contaminants associated with operations conducted in the IOA. The surface soil investigation was designed to fill data gaps in the types of contaminants, concentrations, and spatial patterns of the detected contaminants to fully characterize the Site. The subsurface investigation targeted areas associated with the Building 117 floor drains (RIA 33) and the release associated with the Building 8 USTs (RIA 82).

A grid approach was used for the surface soil investigation. As described in the SAP, the 20-acre investigation area was divided into 49 exposure units (EUs) due to the concern that evaluating risks on a 20-acre site as a whole was not appropriate, particularly if a future resident is the receptor of concern. Each EU was approximately 0.5 acres, although some were larger or smaller than 0.5 acres due to the irregular shape of the IOA. Environmental samples for laboratory analysis and reporting were not collected from seven EUs. These seven EUs included building footprints where no surface soil exposure was possible during industrial operations and closed sites where removal actions were completed or activity and use limits are in place.

The surface soil boring (SB) locations in the other 42 EUs were selected based on review of historical aerials and data, consensus reached during the preparation of the SAP, and field adjustments made during a site walkover to confirm the surface soil sample locations. The surface soil (0 to 2 feet bgs) target analyte groups included polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals. Surface soil samples were collected from the EUs where historical data were not available for one or more of the three analyte groups. The historical data were used along with new surface soil data to complete the data set required for each EU. The SAP also included collection of surface soil samples for dioxin analysis in 12 EUs in the vicinity of the power plant (Building 8) based on potential atmospheric deposition of dioxins in those areas.

A targeted approach was used for the subsurface investigation associated with RIA 33 and RIA 82 to determine whether contaminants remained after removal actions at the two RIAs were completed. A maintenance action was conducted for RIA 33 in 2000 to remove the floor drains in the southwestern portion of Building 117, except in two areas where the floor drain system passed a hydrostatic test. Another removal action of seven USTs at Building 8 was conducted for RIA 82. The SAP included field screening (PetroFLAG for total petroleum hydrocarbon [TPH]) at both RIA 33 and RIA 82 to select samples for laboratory analysis and reporting. Subsurface soil samples were collected at RIA 33 for field screening from depths below the previous floor drain removal action to the water table. The samples included five floor drain removal action confirmation sample locations and also step-out locations. Subsurface samples at RIA 82 were collected for field screening based on a 10-foot grid, at step out locations surrounding SB06-011, a soil sample location with historical exceedances. Subsurface borings were located within Building 117 (RIA 33) and between Building 117 and Building 8 (RIA 82). The subsurface soil (2 to 10 feet bgs) target analyte groups included volatile organic compounds (VOCs), PAHs, and metals.

1.3 REPORT ORGANIZATION

In addition to Section 1 which introduces the objectives of the IOA investigation and location and background information about the Site, the remainder of this document is organized as follows:

- Section 2 provides a summary of field investigations completed under this event including a discussion on global positioning system (GPS) surveying and the management and disposal of investigation derived waste (IDW).
- Section 3 presents a comprehensive summary of analytical results generated from the field sampling program completed under this project.
- Section 4 provides a summary of the streamlined human health risk assessment (HHRA), identifies the contaminants of concern (COCs) as part of the data evaluation for the Site, and provides a discussion on the exposure assessment, toxicity assessment, risk estimate, and uncertainty analysis completed as part of the HHRA.
- Section 5 presents a comparison of analytical data generated from this sampling event to calculated preliminary remediation goals (PRGs) and cleanup goals for the Site.
- Section 6 summarizes the conclusions and recommendations made from this field investigation effort.

This Project Report is supported by a series of tables, figures, and appendices including:

Appendix A – Field Data Sheets

Appendix B – Data Validation and Data Usability Memoranda

Appendix C – Laboratory Analytical Data

Appendix D – Supporting Information for the HHRA

Appendix E – Comparison of Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH) Data in Surface and Subsurface Soil to MCP Criteria

Appendix F – PRG Calculations

2.0 FIELD ACTIVITIES

The IOA field investigation included utility clearance, soil boring advancement, collection of surface and subsurface soil samples, Dexsil PetroFLAG analysis, GPS surveying, and IDW management. All work was conducted in accordance with the SAP (Tetra Tech, 2011b), unless otherwise noted. The field tasks completed under this project are described below. Field log sheets documenting field data and information are included in Appendix A.

2.1 SOIL BORING ADVANCEMENT AND SOIL SAMPLING

Direct push technology (DPT) drilling was performed from August 8 to August 15, 2011 by MAI Environmental, Inc. using a track-mounted GeoProbe® Model 6620DT machine. Dig Safe was contacted and the work area was cleared prior to the start of intrusive work. Soil borings were advanced to collect surface and subsurface soil samples using a Macrocore® MC5 soil sampler. As described in the SAP, the 20-acre investigation area was divided into 47 EUs. The surface soil boring locations in each EU were selected based on review of historical aerials and data, consensus reached during the preparation of the SAP and field adjustments made during a site walkover with the MassDEP on August 2, 2011. Subsurface borings locations within Building 117 (RIA 33) and between Building 117 and Building 8 (RIA 82) were selected as described in the SAP. The soil samples were collected in accordance with the SAP.

Surface Soil Sample Collection

Surface soil samples were collected from 0 to 2 feet bgs (exposed soil) or 0.5 to 2 feet bgs (beneath asphalt) in August 2011. For consistency, all sample intervals were reported as 0 to 2 feet bgs on sample documentation and data tables. Sample intervals of 0.5 to 2 feet bgs (below asphalt) were noted on the boring logs. The samples were analyzed for PAHs, PCBs, metals, and dioxins/furans (dioxins), or a subset of these analyses, based on the available historical data. Historical surface soil data for the required analytes within an EU were considered to be representative sample data for that EU. If historical data were available for all of the required analytes in an EU, additional surface soil samples were not collected. Where there were gaps in the historical data for an EU, surface soil samples were collected for the analytes required to fill the identified data gaps. When additional samples were necessary, one surface soil sample was collected and analyzed from each EU to complete the data set.

Surface soil samples for dioxin analysis were collected in August 2011 from a subset of 10 EUs, biased towards grassy or exposed surface soil areas. Surface soil samples were also collected from EU37 and EU38 from paved areas for dioxin analysis based on the proximity of the EUs to the coal ash management area. Surface soil sample locations and the compounds analyzed at each location are presented on Figure 2-1. Table 2-1 presents the soil analyte groups for each EU and indicates whether

the data evaluated in this Project Report is from a historical sample or the 2011 field sampling program. Table 2-1 and Figure 2-1 also note locations where the historical data was complete for an analyte group.

Field Modification

A sample was collected from EU20 for analysis of PCBs only, but the sample container was broken in transit to the laboratory. A replacement sample was collected upon notification from the laboratory, but was not analyzed by the laboratory. Tetra Tech was not informed of this oversight and discovered this error during data validation.

Subsurface Soil Sample Collection

Fifteen soil borings (five groups of three) were advanced beneath the excavated floor drain system in Building 117 at RIA 33 at locations depicted on Figure 2-2. Each group of three soil borings consisted of one soil boring advanced at a historical confirmation sample location as well as two step-out boring locations (5-footstep outs), as described in the SAP. Borings were advanced from 3 feet bgs (depth of excavation associated with the floor drains) to the water table (approximately 9 to 11 feet bgs). Subsurface soil samples were collected in 2-foot intervals.

All soil samples were analyzed in the field for TPH using a PetroFLAG analyzer and screened with a photo-ionization detector (PID) for the presence of VOCs using the jar headspace method. One confirmation sample was collected from each set of three borings based on the interval with the highest PetroFLAG TPH reading in accordance with the SAP. A total of five subsurface samples were collected in August 2011 for laboratory analysis and reporting of VOCs, PAHs, and metals. The PetroFLAG TPH results and selected sample interval for fixed based laboratory analysis are summarized in Table 2-2.

Six borings were advanced to 10 feet bgs at RIA 82 with samples from these borings collected continuously in 2-foot intervals down to the terminal boring depth. The initial boring was advanced in the vicinity of former boring SB06-011, and a sample was collected for PetroFLAG TPH analysis from the 8 to 10 foot interval for comparison purposes. Four step- out borings were then advanced based on a 10-foot grid to the north, east, south, and west. Samples were collected from 6 to 8 feet bgs (above the water table) and 8 to 10 feet bgs and were analyzed in the field using a PetroFLAG analyzer. Subsurface soil samples were collected at step-out boring locations until the PetroFLAG results were below 300 parts per million (ppm) in accordance with the SAP. All subsurface soil samples from the initial step-out locations were documented at less than 300 ppm. At each step-out location a confirmation sample was collected above the water table (6 to 8 feet bgs) for fixed base laboratory analysis of PAHs and metals in accordance with the SAP.

The samples collected from the 8 to 10 foot bgs interval at the step-out locations were used for field screening and comparison purposes only. One additional step-out boring was advanced to the east of SB06-011 (towards the excavation associated with the former USTs at Building 8). A confirmation sample was collected for field screening purposes only (PetroFLAG analysis). The subsurface soil boring locations associated with RIA 82 are presented on Figure 2-3. The PetroFLAG results and selected sample interval for fixed based laboratory analysis are summarized in Table 2-3.

Soil boring logs are included in Appendix A. The soil samples collected in August 2011 were sent to RTI Laboratories, Inc. for analysis of VOCs, PAHs, PCBs, and metals and to SGS North America, Inc. for analysis of dioxins.

2.2 GPS SURVEYING

The final soil boring locations associated with the EUs and RIA 82 were surveyed using a Trimble® GeoXT™ handheld GPS unit. Horizontal coordinates are referenced to the North American Datum (NAD 83), Massachusetts State Plan Coordinate System, Mainland Zone, and were recorded in units of feet. The locations of the final soil borings associated with RIA 33 (inside Building 117) were documented using a tape measure graduated in tenths.

2.3 IDW MANAGEMENT AND DISPOSAL

IDW generated during the field investigation activities included residual soil, decontamination fluids, used sampling equipment, used personal protective equipment (PPE), and used polyethylene sheeting from the decontamination pad. The used plastic sleeves and PPE were bagged prior to disposal as general refuse in an industrial dumpster. The remaining solid and liquid IDW was containerized in 55-gallon drums and stored inside Building 140 prior to final disposal. Based on the analytical results from the investigation, the solid and liquid wastes were described as non-Resource Conservation and Recovery Act (RCRA) non-Department of Transportation (DOT) regulated material and transported off-site to General Chemical Corporation in Framingham, Massachusetts, an USEPA-approved licensed disposal facility. The transporter was Mill City Environmental of Lowell, Massachusetts.

3.0 ANALYTICAL RESULTS

This section presents the laboratory analytical results for the IOA soil samples. The IOA data evaluation includes the soil samples collected during the 2011 field investigation as well as the historical data from investigations of the environmental sites within the IOA. The 2011 data were evaluated as described in the SAP and validated consistent with the USEPA Region I Tier II validation guidelines. Data validation memoranda for the 2011 samples are provided in Appendix B. A data usability assessment was performed as part of the data validation process and is included in Appendix B. The data collected met the data quality objectives and were determined to be acceptable for use, as qualified, except as noted below:

Project Sensitivity

- Thallium in select samples did not meet the project screening limit; and
- The limit of detection (LOD) exceeded the project screening limit (PSL) for benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. These exceedances are discussed below in greater detail.

Data Completeness

- Methyl acetate in samples IOA-SO-DUP05-081511, IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB08-0305, IOA-SO-RIA33-SB10-0305, and IOA-SO-RIA33-SB14-0507 was qualified as rejected;
- Methylene chloride in sample IOA-SO-RIA33-SB10-0305 was qualified as rejected;
- Sample IOA-SS-EU20-0002 for PCB analysis only was broken in transit; it was recollected and submitted to the laboratory but was not analyzed.

The data usability assessments in Appendix B provide additional information. The analytical results were compared the USEPA Regional Screening Levels (RSLs) (USEPA, 2012a). The historical EPH and VPH results were compared to the current MCP Method 1 S-1/GW-1 values (MassDEP, 2007). Analytical results that exceeded the RSLs were then compared to Base background values, where applicable (Stone & Webster, 2002). Exceedances of the RSL and Base background screening criteria are highlighted in Tables 3-1 to 3-4. The results are summarized below, arranged by analyte group. Note that in the tables black shading indicates concentrations that exceed the RSL and Base background (where applicable); blue shading indicates concentrations that exceed the RSL, but were less than Base background.

3.1 SURFACE SOIL ANALYTICAL RESULTS

A surface soil sample was collected in 2011 from any EU where historical data were not available for one or more of the four target analyte groups (PAHs, PCBs, metals, and dioxins) within the EU to complete the data set. Forty-two surface soil samples were collected for analysis of one or more of the target

analyte groups. Note that while the 2011 surface soil samples were collected from 0 to 2 feet bgs, some historical surface soil samples were collected from 0 to 3 feet bgs. Table 2-1 summarizes the surface soil analyte groups for each EU. Figure 2-1 presents the historical and 2011 surface soil sample locations included in this data evaluation.

Table 3-1 presents the exceedances of the screening criteria for PAHs, pesticides, and metals; note that only the compounds with exceedances of screening criteria are presented in Table 3-1 due to the large volume of data associated with the IOA. Table 3-2 presents the dioxin analytical results. If a duplicate sample was collected at a location the original, duplicate, and average concentrations are reported. The complete surface soil data set is presented in Appendix C-1. The results of the data comparisons presented in Tables 3-1 and 3-2 are discussed below by analyte group.

EPH/VPH

EPH and VPH were detected in the historical surface soil data set, but there were no exceedances of the screening criteria in any of the historical samples. The 2011 surface soil samples were not analyzed for EPH or VPH.

PAHs

PAHs were the only semi-volatile organic compounds (SVOCs) in the historical surface soil data set with concentrations that exceeded screening criteria; therefore the 2011 samples were only analyzed for PAHs. Twenty three PAHs were detected in site surface soils, as presented in Appendix C-1. The PAHs in the historical and 2011 surface soil data set that exceeded the screening criteria were: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The highest concentrations of these compounds were from historical samples SB06-001 and SB06-002, associated with AOC 13 (EU28). The data from these two samples were included in the IOA evaluation since the AOC 13 removal action information did not clearly indicate whether the excavation included these locations. The remaining PAH exceedances were primarily associated with EUs in the vicinity of EU28, including EU29, EU37, EU38, EU39, and EU40. In addition, indeno(1,2,3-cd)pyrene concentrations exceeded the screening criteria in the samples associated with EU08 and EU26 and dibenzo(a,h)anthracene concentrations exceeded the screening criteria in samples associated with 12 additional EUs. As previously noted, the LOD exceeded the PSLs (equivalent to the USEPA RSLs) for benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene in a number of samples. PAH results shown in Table 3-1 as not detected were used in the benzo(a)pyrene equivalents calculations described in the contaminant of potential concern (COPC) selection portion of the HHRA (Section 4.1.1).

Pesticides

Soil samples collected during the 2011 field investigation were not analyzed for pesticides. Fourteen pesticides were detected in historical surface soil samples, as presented in Appendix C-1. Heptachlor epoxide was the only pesticide with concentrations in historical surface soil samples that exceeded the RSL: at two locations, SB06-001 and SB06-002. These sample locations are associated with AOC 13. As noted above the samples were included in the IOA evaluation since the AOC 13 removal action may not have included these two locations. Since excavation cannot be confirmed, data from these points are included and have been evaluated in support of the IOA investigation.

PCBs

Aroclor-1260 was the only PCB detected in surface soil. Concentrations of Aroclor-1260 in 18 of 66 samples analyzed exceeded the RSLs. Eight of these exceedances were in historical samples collected in EU15. The remaining exceedances were associated with EUs 7, 8 (two samples), 9, 10, 11, 16, 17, and 18, which are all located in the eastern portion of the Site north and east of EU15. There was also one exceedance associated with EU43 in the southwest portion of the Site.

Metals

Twenty three metals were detected in Site surface soils, as presented in Appendix C-1. Concentrations of nine metals (aluminum, arsenic, chromium, cobalt, iron, lead, manganese, thallium, and vanadium) exceeded the RSL and/or Base background screening criteria in two or more samples. In addition, calcium and magnesium concentrations exceeded Base background values in many samples; there are no USEPA RSLs for these metals. The maximum concentrations of chromium, lead, and vanadium were associated with EU39. The maximum concentrations of arsenic and iron were associated with EU49. EU39 and EU49 are located in the south central portion of the Site. The remaining maximum concentrations of metals were spread out: aluminum (EU30), cobalt (EU08), manganese (EU31), and thallium (EU09), which are all located in the northeastern or eastern portion of the Site.

Dioxins

Seventeen dioxins were detected in surface soil samples. The most toxic dioxin, 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD) was reported in samples collected from eight locations, but none of the detected concentrations exceeded the RSL. The only dioxin concentration that exceeded its associated RSL was 2,3,4,7,8- pentachlorodibenzofuran (PECDF) in a sample from EU09. Since each dioxin compound has a different level of toxicity, Toxic Equivalents (TEQ), or weighted dioxin values, were calculated and are presented in Table 3-2. The TEQ and the TEQ calculated using non-detects at half the detection limit exceeded the associated RSLs at EU09, EU13, EU26, EU37, EU39, and EU43. The

total heptachlorodibenzo-p-dioxins (HPCDD) concentration exceeded the RSL at EU13, EU15, EU37, and EU43. The dioxin analytical results are presented on Table 3-2.

3.2 SUBSURFACE SOIL ANALYTICAL RESULTS

3.2.1 RIA 33

Five subsurface soil samples were collected for analysis at a fixed-base laboratory for VOCs, PAHs, and metals based on the PetroFLAG and PID field screening results presented in Table 2-2. Table 3-3 presents the detected laboratory analytical results. The complete subsurface data set is presented in Appendix C-2.

VOCs

Three VOCs were detected at low levels in the soil samples collected at RIA 33, none of which exceeded the screening criteria. All three VOCs were detected in the sample collected from IOA-RIA33-SB10 from 3 feet to 5 feet bgs.

PAHs

Up to 17 PAHs were detected in one or more soil samples collected at RIA 33. Concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded the RSL at one or more sample locations as shown in Table 3-3. Concentrations of benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were all below Base background values. The most RSL exceedances were associated with sample location SB02 (four exceedances). Benzo(a)pyrene and dibenzo(a,h)anthracene were not detected in soil sample SB08-0305, but as noted in the data usability assessment, the limit of detection exceeded the PSL and therefore the RSL at this location.

Metals

As many as 20 metals were detected in one or more soil samples collected at RIA 33. Concentrations of aluminum, arsenic, chromium, cobalt, iron, manganese and thallium exceeded the associated screening criteria at one or more locations. Arsenic, chromium, cobalt, and iron concentrations exceeded the RSL at all five sample locations. Manganese concentrations exceeded the RSL at three of the five locations. Aluminum concentrations exceeded the screening criteria in the sample collected at SB14, but the concentration in the duplicate sample from this location did not exceed the criteria. Thallium concentrations exceeded the RSL at only one location (SB10), but as noted in the usability assessment, was not detected above the screening criteria at a number of locations. As indicated in Table 3-3 concentrations of many of the samples with RSL exceedances were less than Base background values.

3.2.2 RIA 82

Four subsurface soil samples were collected for analysis at a fixed-base laboratory for PAHs and metals based on field screening results (PetroFLAG and PID) presented in Table 2-3. Table 3-4 presents the detected laboratory analytical results. The complete data set is presented in Appendix C-2.

PAHs

There were no PAH detections in the soil samples collected from RIA 82. As noted above and in the data usability assessment, the LODs for benzo(a)pyrene and dibenzo(a,h)anthracene were greater than the PSL indicating the non-detected results may exceed the associated screening criteria.

Metals

Up to 18 metals were detected in one or more subsurface soil samples collected from RIA 82. Concentrations of arsenic, chromium, cobalt, and iron exceeded the associated RSL at one or more locations; none of the concentrations exceeded Base background values. Chromium concentrations exceeded the RSL at all four sample locations. Iron concentrations exceeded the RSL at sample locations SB02A, SB03A, and SB04A. Cobalt concentrations exceeded the RSL at sample locations SB03A and SB04A and arsenic exceeded the RSL at sample location SB04A, only.

3.3 RISK SCREENING

A streamlined HHRA was performed following the evaluation of the analytical results to further characterize the potential threat to human health from exposure to Site soils. The historical surface and subsurface soil analytical data were compiled with the analytical data collected in 2011 to address data gaps in the historical data set. This complete IOA data set was used in the HHRA. The HHRA included chemicals with concentrations that exceeded both the RSLs and Base background values. Chemicals with concentrations that exceeded RSLs but did not exceed Base background values were not included. The streamlined HHRA is presented in Section 4.0. An ecological risk assessment was not required since the IOA is largely paved and located in the central industrial portion of the Base. The Site lacks any significant potential ecological habitat and there is no complete exposure pathway for ecological receptors.

4.0 HUMAN HEALTH RISK ASSESSMENT

This streamlined HHRA was prepared to determine whether detected concentrations of chemicals within the Site pose a significant threat to potential human receptors under current and/or future land use scenarios. The assessment is streamlined in the sense that it focuses on two receptors of concern only, the hypothetical future resident and the hypothetical future commercial receptor. Risk estimates are provided for these receptors based on exposure point concentrations (EPCs) calculated for two surface soil areas and one subsurface soil exposure unit/area described in Section 4.2.2. The IOA is a relatively large area (20 acres), risk estimates are also presented on a location-by-location basis for the hypothetical future resident to allow a more refined understanding of risk across the Site and, thus, facilitate risk management decision making.

The potential risks to human receptors are estimated based on the assumption that no actions are taken to control contaminant releases. The baseline risk assessment consists of five major components:

- Data evaluation and identification of COPCs
- Identification of significant exposure pathways
- Toxicity assessment
- Estimation of potential human health risks
- Characterization of uncertainty in the risk assessment

The HHRA evaluates only reasonable maximum exposure (RME) risks to receptors as a conservative approach to aid in risk management decision making. This approach is in accordance with the Final Streamlined HHRA Work Plan for Areas of Concern at NAS South Weymouth (EA Engineering, Science, and Technology, 2001).

The HHRA evaluates non-cancer health hazards, cancer risks, and lead exposures through quantitative assessments. The potential for non-carcinogenic health effects is assessed by comparing an exposure estimate (dose) to a reference dose (RfD). Ratios of the intake dose to the RfD at or below 1.0 indicate that adverse non-carcinogenic effects are unlikely. Risks attributable to exposure to chemical carcinogens are estimated as the probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. Risks below $1x10^{-6}$ (or a risk less than 1 in 1 million) are generally considered to be acceptable by USEPA, and risks greater than $1x10^{-4}$ (1 in 10,000) are generally considered to be unacceptable. Risk management decisions are made on a case-specific basis when cancer risk estimates are within the USEPA risk management range ($1x10^{-6}$ to $1x10^{-4}$).

Risks from lead exposure are not evaluated using the same methodology as other contaminants. Estimations of blood-lead concentrations are used to evaluate the potential for adverse health effects. Infants and young children are extremely susceptible to adverse effects from exposure to lead. Since

children are a more sensitive subpopulation than adults, exposure to lead by adults in a residential scenario is not generally evaluated and, as such, the receptor of concern for the residential land use scenario is the young child. Evaluation of the young child in a residential or recreation scenario is considered protective of adults, including pregnant women. Blood-lead levels greater than 10 micrograms per deciliter (µg/dL) are considered to be a "concern." USEPA's stated goal for lead is that individuals exposed would have no more than a 5 percent probability of exceeding the level of concern,10 µg/dL.

4.1 DATA EVALUATION

Data evaluation is a site-specific task that uses a variety of information to determine which of the detected chemicals in each medium are most likely to present a risk to potential receptors and at what concentrations. This section presents the approaches for identification of COPCs and EPCs. The end result of this qualitative selection process is a list of COPCs and representative EPCs. EPCs are defined as the contaminant concentrations at the point of exposure.

The IOA data set is presented in Appendix C, Tables C-1 and C-2, which include the samples and concentrations for all analytes in site surface soil and subsurface soil, respectively. The Streamlined HHRA Work Plan (EA Engineering, Science, and Technology, 2001) defines surface soil as soil between 0 and 2 feet bgs, and subsurface soil as soil between 2 feet and 10 feet bgs. In this HHRA, surface soil sample depths ranged from 0 to 3 feet bgs, as some historical samples collected between 1 and 3 feet bgs were included in the surface soil data set. Subsurface soil samples included in this HHRA were collected between 3 and 8 feet bgs.

The media, receptors, and exposure routes evaluated in this HHRA are presented in Table 4-1 [also presented in the Risk Assessment Guidance for Superfund (RAGS) Part D Tables included as Appendix D-1].

4.1.1 Selection of COPCs

COPCs were selected to represent site contamination and to provide the framework for the quantitative HHRA. The risk screening initially evaluated surface and subsurface soil by comparing data for these media to USEPA RSLs for residential soil (USEPA, 2012b) which provided the basis for screening criteria (risk-based concentrations [RBCs]) used to reduce the number of chemicals and exposure routes considered in the risk assessment. Residential soil criteria were developed with conservative exposure assumptions designed to represent a residential land use scenario. Screening with residential criteria should be protective of any other land use scenarios as well. USEPA risk-based soil screening levels (SSLs) for the protection of groundwater (USEPA, 2012b) were also used for COPC selection. However, the groundwater protection SSLs were not used to select COPCs for quantitative risk evaluation, but to

provide a qualitative evaluation of the potential for chemical migration from soil to groundwater. Chemicals with concentrations exceeding the SSLs may potentially migrate from the soil to groundwater in sufficient quantities to pose concerns regarding groundwater quality. Maximum detected concentrations of each chemical in surface soil and subsurface soil at the Site were compared to the risk-based screening criteria. A chemical was selected as a COPC if the maximum detected concentration was greater than the associated RBC representing a human cancer risk of 1×10^{-6} or a non-cancer hazard quotient (HQ) of 0.1. Chemicals exceeding USEPA risk-based SSLs are discussed qualitatively in the risk assessment. RSLs are based on an HQ of 1, but the screening criteria for non-carcinogens were adjusted to represent an HQ of 0.1. One-tenth of the RSL is recommended for non-carcinogenic chemicals to account for the potential cumulative effects of multiple compounds affecting the same target organ or system.

Cancer risk estimates for benzo(a)pyrene and six other carcinogenic polycyclic aromatic hydrocarbons (cPAHs) [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene] were assessed in compliance with USEPA's *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons* (USEPA, 1993) for the assignment of Toxicity Equivalence Factors (TEFs). These TEFs are based on the relative potency of each compound relative to that of benzo(a)pyrene. The TEFs are used to convert each individual cPAH concentration into an equivalent concentration of benzo(a)pyrene. The sum of these equivalent concentrations for the six other PAHs and benzo(a)pyrene is the benzo(a)pyrene equivalents concentration.

Benzo(a)pyrene equivalents are calculated two ways: (1) the benzo(a)pyrene equivalents – ½ non-detect value is calculated using one-half of the detection limit to represent non-detected results in the calculation; and (2) the benzo(a)pyrene equivalents – positive value is calculated using a value of zero to represent non-detected PAH results. In either benzo(a)pyrene equivalents calculation, if none of the PAHs were detected in a sample, then the sample quantitation limit for benzo(a)pyrene was used as the equivalent concentration for that sample. Values for both benzo(a)pyrene equivalents calculations are presented in the COPC selection tables. In most cases, the values calculated for benzo(a)pyrene equivalents are similar between the two methods but are occasionally slightly greater for the benzo(a)pyrene equivalents – ½ non-detect value; therefore to be conservative the benzo(a)pyrene equivalents – ½ non-detect values were used in the HHRA. Using one-half of the detection limit for non-detects recognizes that the concentration of a PAH in a specific sample may be greater than zero even though the result is considered non-detected (i.e., the cPAH may be present at a concentration between zero and the sample quantitation limit).

For dioxins, the 2,3,7,8-TCDD equivalents were calculated using World Health Organization (WHO) TEFs (WHO, 2006), which are recommended by USEPA (USEPA, 2010a), for 2,3,7,8-TCDD and 16 other

dioxins. TEFs are based on the potency of each of these compounds relative to that of 2,3,7,8-TCDD. TEFs are used to convert each individual dioxin concentration into an equivalent concentration of 2,3,7,8-TCDD. The sum of these equivalent concentrations for the 16 other dioxins and 2,3,7,8-TCDD is the 2,3,7,8-TCDD equivalents (TEQ) concentration.

The 2,3,7,8-TCDD equivalents were calculated two ways: (1) the 2,3,7,8-TCDD equivalents - ½ non-detect value is calculated using one-half of the detection limit to represent non-detected results in the calculation; and (2) the 2,3,7,8-TCDD equivalents – positive value is calculated using a value of zero to represent non-detected dioxin/furan results. In either calculation, if none of the dioxins were detected in a sample, then the estimated detection limit for 2,3,7,8-TCDD was used as the equivalent concentration for that sample. Values for both 2,3,7,8-TCDD equivalents calculations are presented in the COPC selection tables.

The values calculated for 2,3,7,8-TCDD equivalents are similar between the two methods. The 2,3,7,8-TCDD equivalents – ½ non-detect values were used in the HHRA to be conservative. Using one-half of the detection limit for non-detects recognizes that the concentration of a dioxin in a specific sample may be greater than zero even though the result is considered non-detected (i.e., the dioxin may be present at a concentration between zero and the sample estimated detection limit).

PCBs were reported in terms of Aroclor mixture concentrations. The analytical results reported for the individual Aroclors were compared to screening criteria for individual Aroclors. Total Aroclors concentrations are presented on the data summary tables; however, only Aroclor-1260 was detected in the soil samples.

COPC selection criteria for hexavalent chromium were used to evaluate total chromium results. This conservative approach was taken because chromium speciation data are not available and chromium is considered more toxic in the hexavalent state.

Screening criteria were not available for some detected chemicals (i.e., acenaphthylene, benzo(g,h,i)perylene, phenanthrene, alpha- and gamma-chlordane, endosulfan II, endosulfan sulfate, endrin aldehyde, and endrin ketone). The screening levels available for acenaphthene were used as surrogate screening levels for acenaphthylene, and the screening levels for pyrene were used as surrogate screening levels for benzo(g,h,i)perylene and phenanthrene because these compounds have similar chemical structures. Similarly, the screening levels available for chlordane were used as surrogate screening levels for alpha- and gamma-chlordane, the screening levels for endosulfan were used as surrogate screening levels for endosulfan II and endosulfan sulfate, and the screening levels for endrin were used as surrogate screening levels for endrin aldehyde and endrin ketone. RSLs for the carbon chain parameters in the EPH and VPH fractions were not available. The EPH and VPH results are additionally screened against MCP criteria in Appendix E for informational purposes.

Background values established for former NAS South Weymouth (Stone and Webster, 2002) are presented on the COPC selection tables discussed below. Site concentrations were compared to 95 percent upper prediction limits (UPL) (95 percent UPL) or maximum concentration for background data.

The essential nutrients calcium, magnesium, potassium, and sodium were not selected as COPCs because these inorganic chemicals are naturally abundant in environmental matrices and are only considered toxic at high doses.

Chemicals without screening criteria were not retained as COPCs. However, these chemicals are qualitatively discussed in the Section 4.6 uncertainty analysis.

4.1.2 Direct Contact COPC Selection for Surface Soil

Table 4-2 shows the results of the comparison of the maximum detected surface soil concentrations to screening levels based on the USEPA RSLs for residential soil. The following chemicals were retained as direct contact COPCs for surface soil:

- PAHs: benzo(a)pyrene (BAP) equivalents, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- Pesticides/PCBs: Aroclor-1260 and heptachlor epoxide
- Metals: aluminum, arsenic, chromium, cobalt, iron, lead, and manganese
- Dioxins: 2,3,4,7,8-PECDF and 2,3,7,8-TCDD equivalents

These chemicals were identified as direct contact COPCs in surface soil because maximum concentrations exceeded the screening criteria.

Table 4-2 shows that the maximum concentrations of thallium and vanadium exceed the USEPA RSLs for residential soil; however, these chemicals were not selected as COPCs because the maximum detected concentration of these metals was less than the established background value. Potential risks associated with chemicals eliminated as COPCs due to background conditions are discussed in Section 4.4.

As mentioned previously, no RSLs were available for the EPH and VPH aromatics and aliphatics presented in Table 4-2. However, Appendix E, Table E.1 presents MCP Method 1 S-1 & GW-1 for these parameters. As shown in Table E.1, the maximum concentrations of the aromatics and aliphatics do not exceed the associated MCP criteria.

4.1.3 Migration to Groundwater COPC Selection for Surface Soil

Table 4-3 shows the results of the comparison of the maximum detected surface soil concentrations to screening levels based on the USEPA risk-based SSLs for protection of groundwater. The following chemicals were retained as migration to groundwater COPCs for surface soil:

- VOCs: benzene
- SVOCs: 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)athracene, dibenzofuran, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene
- Pesticides/PCBs: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha-chlordane, Aroclor-1260, dieldrin, endrin ketone, gamma-chlordane, heptachlor, and heptachlor epoxide
- Metals: arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, and manganese
- Miscellaneous parameters: cyanide
- Dioxins: 1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin (OCDD), 1,2,3,4,6,7,8- HPCDD, 1,2,3,4,6,7,8-heptachlorodibenzofuran (HPCDF), 1,2,3,4,7,8- hexachlorodibenzofuran (HXCDF), 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin (HXCDD), 1,2,3,6,7,8-HXCDF, 1,2,3,7,8,9-HXCDD, 1,2,3,7,8-pentachlorodibenzo-p-dioxin (PECDD), 2,3,4,6,7,8-HXCDF, 2,3,4,7,8-PECDF, 2,3,7,8-TCDD, and 2,3,7,8- tetrachlorodibenzofuran (TCDF)

These constituents were identified as migration to groundwater COPCs in surface soil because maximum detected concentrations exceeded USEPA SSLs for groundwater protection, which indicates the potential for chemical migration from soil to groundwater.

Chemicals selected as surface soil COPCs for migration to groundwater were further evaluated to determine if the available soil and groundwater data indicate that these COPCs have negatively impacted groundwater quality. Additional lines of evidence were considered to eliminate COPCs from further evaluation, including:

- The maximum soil concentration is less than the groundwater protection criteria based on a dilution attenuation factor (DAF) of 20. ***Rationale*:** The risk-based SSLs used in Table 4-3 are based on a DAF of 1, which is conservative; a DAF of 20 (i.e., 20 times the DAF used to develop the screening levels in Table 4-3) is assumed to be more accurate at most sites. This is because a DAF of 1 is the lowest DAF value possible and assumes that no reduction in concentration occurs as the contaminant moves from the source to groundwater, or in other words, that the concentrations at the source and in groundwater are the same (i.e., a receptor is exposed to the leachate concentration). Although appropriate DAF values are highly variable depending on individual site characteristics, USEPA generally recommends a DAF of 20 as appropriate for contaminated soil sites up to 0.5 acre in size (USEPA, 1996a).
- The chemical was not selected as a COPC in groundwater. ***Rationale*:** If a chemical was not selected as a COPC in site groundwater (i.e., if concentrations detected in groundwater do not exceed conservative risk-based screening levels for tap water), the data do not indicate that water quality has been adversely affected.

- The maximum concentration in groundwater is less than the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL). ***Rationale:*** SDWA MCLs are federally enforceable drinking-water standards. Concentrations of chemicals in groundwater less than their corresponding SDWA MCLs indicate that groundwater has not been adversely affected.
- The frequency of detections in soil greater than the SSL at a DAF of 20 is less than 5 percent (when at least 20 samples are included in the data set and no contamination "hot spot" is present). Conservatively, a "hot spot" is defined as a concentration that exceeds twice the SSL at a DAF of 20. ***Rationale:*** Chemicals are unlikely to pose risks to water quality through leaching from soil to groundwater if they are detected infrequently (i.e., less than 5 percent) in soil.
- The MCL-based SSL at a DAF of 20 is not exceeded. ***Rationale:*** The MCL-based SSL is protective of groundwater to the MCL. Remediation of chemical concentrations in groundwater to levels less than the MCL would be unlikely. A DAF of 20 is appropriate for most soil sites, as stated previously.
- The frequency of detections greater than the USEPA tap water RSL is less than 5 percent (when at least 20 samples are included in the data set and no contamination "hot spot" is present). A "hot spot" is defined as a concentration that exceeds twice the USEPA tap water RSL. ***Rationale:*** Chemicals are unlikely to pose risks to water quality through leaching from soil to groundwater if they are detected infrequently (i.e., less than 5 percent) in groundwater.

Historical groundwater quality results were used to aid in the refined migration to groundwater evaluation. Historical groundwater quality data were presented and discussed in the Industrial Operations Area Technical Memorandum (Tetra Tech, 2010) and in the Navy's Responses to Comments (RTCs) on the draft IOA SAP (Tetra Tech, 2011a). Groundwater sample data collected between 1996 and 2002 from monitoring wells within or just outside the IOA boundary (presented in Table C-3 in Appendix C) are discussed in the refined migration to groundwater evaluation. The monitoring well locations associated with the sample data are presented on Figure 4-1. Table C-4 in Appendix C contains a summary of descriptive statistics for these IOA groundwater data and a comparison to screening criteria based on the USEPA RSLs for tap water and MCLs.

The results of the refined migration to groundwater evaluation for surface soil are summarized in Table 4-4 and discussed below.

As shown in Table 4-4, benzene, which is the only VOC COPC, has not negatively impacted (or is not likely to impact) groundwater quality because concentrations of benzene in soil do not exceed an SSL at a DAF of 20, and concentrations of benzene detected in groundwater do not exceed the MCL.

Surface soil concentrations of the SVOCs 2-methylnaphthalene, chrysene, dibenzofuran, phenanthrene, and pyrene do not exceed the SSL at a DAF of 20. Additionally, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were not detected in groundwater at concentrations exceeding screening

levels, and detected concentrations of benzo(a)pyrene in groundwater were less than the MCL. Therefore, the data do not indicate that these SVOCs detected in soil have negatively impacted (or are likely to impact) groundwater quality. Benzo(a)anthracene and benzo(b)fluoranthene concentrations in surface soil exceed the SSL at a DAF of 20, and their maximum concentrations in groundwater exceed the screening levels. However, the benzo(a)pyrene equivalents concentration in groundwater does not exceed the MCL for benzo(a)pyrene. Additionally, benzo(a)anthracene was detected relatively infrequently in groundwater (detected in 3 of 44 samples), and benzo(b)fluoranthene was detected in less than 5 percent of groundwater samples (detected in 1 of 44 samples). Therefore, the data do not indicate that groundwater has been negatively impacted by benzo(a)anthracene and benzo(b)fluoranthene, and these cPAHs are not retained for further evaluation for migration from soil to groundwater.

In contrast, the data indicate that naphthalene in surface soil may have negatively impacted groundwater quality. Several concentrations of naphthalene in surface soil exceed the risk-based SSL based on a DAF of 20 by more than one order of magnitude, and several concentrations of naphthalene in groundwater exceed the tap water RSL by more than one order of magnitude. The surface soil naphthalene concentrations exceeding the SSL at a DAF of 20 by more than one order of magnitude were detected in EUs 15, 28, 37, 38, 39, and 40. Surface soil naphthalene concentrations that exceed but are within one order of magnitude of the SSL at a DAF of 20 were detected in EUs 6, 9, 29, and 36. There is not a clear site-related pattern for the naphthalene concentrations observed. Naphthalene was not detected in available groundwater samples in EUs with surface soil concentrations exceeding the risk-based SSL, although groundwater data were not available for some of these EUs.

Eleven pesticides/PCBs (excluding Total Aroclors) were selected as surface soil COPCs for migration to groundwater; however, none of these chemicals were detected in groundwater. Therefore, the data do not indicate that groundwater has been negatively affected, and no pesticides/PCBs were retained for further evaluation for the migration to groundwater pathway. Additionally, detected concentrations of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and endrin ketone in surface soil do not exceed SSLs at a DAF of 20.

Twelve dioxins/furans were selected as surface soil COPCs for migration to groundwater; however, the maximum concentrations of 11 of these dioxins/furans did not exceed the SSL at a DAF of 20. Although the maximum surface soil concentration of 2,3,4,7,8-PECDF exceeds the SSL at a DAF of 20, only 1 of 16 concentrations exceeds the SSL at a DAF of 20. Additionally, no detected surface soil concentrations of 2,3,4,7,8-PECDF exceed the MCL-based SSL. Therefore, the data do not indicate that leaching from surface soil to groundwater is expected, and no dioxins/furans were retained for further evaluation for the migration to groundwater pathway. Groundwater samples were not analyzed for dioxins/furans.

Nine metals plus cyanide were selected as surface soil COPCs for migration to groundwater. Of these metals, barium, cadmium, and copper concentrations in surface soil do not exceed the SSL at a DAF of 20. Cadmium, cobalt, and cyanide were not detected in groundwater, and chromium, iron, and

manganese were detected in groundwater but were not groundwater COPCs. Although maximum concentrations of arsenic, barium, and copper in groundwater exceeded screening levels based on RSLs for tap water, concentrations of these metals were less than MCLs. Therefore, arsenic, barium, cadmium, chromium, cobalt, copper, cyanide, iron, and manganese were not retained for further evaluation for the migration to groundwater pathway.

Lead concentrations in surface soil exceed the SSL at a DAF of 20 in less than 5 percent of samples; however, a "hot spot" concentration (i.e., a concentration greater than twice the SSL at a DAF of 20) was detected in EU 39 (the maximum lead concentration). There is not a clear site-related distribution pattern for the lead concentrations observed, as lead was not detected in the available groundwater sample in EU 39.

No screening criteria were available from the USEPA RSL table for the EPH and VPH aromatics and aliphatics presented in Table 4-3. However, Appendix E, Table E.1 presents EPH and VPH parameters in surface soil screened against the MCP Method 1 S-1 and GW-1 criteria, which are protective of soil and migration to groundwater where groundwater may potentially be used as a drinking source. The aromatics and aliphatics parameters were detected in soil at concentrations less than the MCP criteria. Therefore, concentrations of these parameters in soil are not expected to negatively impact groundwater quality at the IOA.

4.1.4 Direct Contact COPC Selection for Subsurface Soil

Table 4-5 shows the results of the comparison of the maximum detected subsurface soil concentrations to screening levels based on the USEPA RSLs for residential soil. The following chemicals were retained as direct contact COPCs for subsurface soil:

- SVOCs: BAP equivalents, benzo(a)pyrene, and dibenzo(a,h)anthracene
- Metals: arsenic, chromium, cobalt, and iron

These chemicals were identified as direct contact COPCs in subsurface soil because maximum concentrations exceeded the screening criteria based on the USEPA RSLs for residential soil.

Table 4-5 also shows that the maximum concentrations of benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, aluminum, manganese, and thallium also exceed the screening criteria; however, the detected concentrations of these chemicals were within background levels. Therefore, these chemicals were not selected as COPCs. However, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene concentrations were incorporated into the BAP equivalents concentration, and BAP equivalents were selected as a COPC because benzo(a)pyrene and dibenzo(a,h)anthracene concentrations exceeded screening levels and background values. Potential risks associated with

chemicals eliminated from COPC selection based on the background screen are discussed in Section 4.4.

4.1.5 Migration to Groundwater COPC Selection for Subsurface Soil

Table 4-6 shows the results of the comparison of the maximum detected subsurface soil concentrations to screening levels based on the USEPA SSLs for protection of groundwater. The following chemicals were retained as migration to groundwater COPCs for subsurface soil:

- VOCs: 1,1-dichloroethane and trichloroethene (TCE)
- SVOCs: benzo(a)pyrene, dibenzo(a,h)anthracene, and naphthalene
- Metals: arsenic, chromium, cobalt, iron, and lead

These chemicals were identified as migration to groundwater COPCs in subsurface soil because maximum concentrations exceeded USEPA SSLs for groundwater protection, which indicate the potential for chemical migration from soil to groundwater.

Table 4-7 summarizes the conclusions of the refined migration to groundwater evaluation for subsurface soil based on the considerations listed in the migration to groundwater COPC selection for surface soil discussion. As noted in Section 4.1.3, historical groundwater results were used to aid in the refined migration to groundwater evaluation. Historical groundwater data were presented and discussed in the Industrial Operations Area Technical Memorandum (Tetra Tech, 2010) and in the Navy's RTCs on the draft IOA SAP (Tetra Tech, 2011a). Groundwater sample data collected between 1996 and 2002 from monitoring wells within or just outside the IOA boundary (presented in Table C-3 in Appendix C) are discussed in the refined migration to groundwater evaluation. The monitoring well locations are presented on Figure 4-1. Table C.4 contains a summary of descriptive statistics for these IOA groundwater data and a comparison to screening criteria based on the USEPA RSLs for tap water and MCLs.

As shown on Table 4-7, detected concentrations of 1,1-dichloroethane did not exceed the SSL at a DAF of 20, and 1,1-dichloroethane and TCE were not detected in groundwater. Therefore, the data do not indicate that VOCs have negatively impacted water quality.

The available data do not indicate that SVOCs benzo(a)pyrene and dibenzo(a,h)anthracene have negatively impacted groundwater quality. The benzo(a)pyrene concentrations detected in the groundwater did not exceed the SDWA MCL. Detected concentrations of dibenzo(a,h)anthracene in subsurface soil do not exceed the SSL at a DAF of 20, and dibenzo(a,h)anthracene was not detected in groundwater. Therefore, these SVOCs were not retained for further evaluation for the migration to groundwater pathway.

The data indicate that naphthalene in subsurface soil may have negatively impacted groundwater quality. Several concentrations of naphthalene in subsurface soil exceed the risk-based SSL based on a DAF of 20 but not by more than one order of magnitude. In contrast, detected concentrations of naphthalene in surface soil exceeded the SSL based on a DAF of 20 by more than one order of magnitude in several EUs. As noted in Section 4.1.3, several concentrations of naphthalene in groundwater exceed the tap water RSL by more than one order of magnitude. The subsurface soil naphthalene concentrations exceeding the SSL at a DAF of 20 were detected in RIA 33. There is not a clear site-related pattern for the naphthalene concentrations observed, as naphthalene was non-detected in available groundwater samples in EUs surrounding the RIA 33 samples, although groundwater data were not available for some of these EUs.

For the metals, lead was not detected in subsurface soil at concentrations exceeding the SSL at a DAF of 20; therefore, lead in subsurface soil is not expected to negatively impact groundwater quality. The metals chromium, cobalt, and iron were not selected as COPCs in groundwater, and concentrations of arsenic and chromium detected in groundwater did not exceed MCLs (see Table C.4 in Appendix C). Therefore, the data do not indicate that these metals have negatively impacted groundwater quality.

4.2 EXPOSURE ASSESSMENT

The exposure assessment defines and evaluates the exposures that may be experienced by a receptor population. To have an exposure, the following must occur: there must be a source of contamination in an environmental medium; there must be a mechanism through which a receptor can come into contact with the contaminants in that medium; and there must actually (or potentially) be a receptor present at the point of contact.

The exposure assessment consists of several steps that characterize the receptors of concern, identify the potential contaminant exposure pathways, and present the equations and assumptions used to quantify exposure in terms of contaminant intake (dose). Table 4-1 presents the receptors and exposure pathways identified for the Site and provides the rationale for the quantitative evaluation of the selected exposure pathways.

4.2.1 Potential Receptors

Several potential receptors have been identified under both current and future land use conditions. These receptors were identified by analyzing the interaction of current and anticipated future land use practices and the identified sources of contamination. Figure 1-2 illustrates the allowable uses for the zoning districts in the IOA portion of the Base as established by the SSTTDC, which include: residential housing, commercial, institutional, and indoor and outdoor recreational uses (SSTTDC, 2005). Commercial uses include retail, hotels, offices and day care centers. Based on the allowable uses,

potential receptors include: current/future trespassers, future construction workers, future recreational visitors, future residents, and future commercial receptors. Future residents are likely to be exposed more frequently and for longer durations than most other receptors; therefore, risks incurred by the residents will exceed risks incurred by other receptors. Consequently, the Navy elected to evaluate future residential use as a scenario protective of all possible future land uses at the IOA. For this reason, this HHRA has evaluated future residential receptors quantitatively. Risks to child and adult commercial receptors were also evaluated quantitatively due to the commercial uses allowed in zoning districts located within the IOA.

The media evaluated in this streamlined HHRA are surface soil and subsurface soil. Receptors may come into direct contact with soil impacted by the release of chemicals from the source areas. During the receptor's period of contact, the individual may be exposed via inadvertent ingestion of a small amount of soil, dermal absorption of certain contaminants from the soil, or inhalation of fugitive dusts emanating from the soil.

Only the RME scenario was developed for this streamlined HHRA. The RME scenario uses values that represent the upper distribution or “high-end” of population exposure for most exposure parameters in order to provide an upper bound of the possible risk. The RME is conceptually the “high end” exposure, above the 90th percentile of the population distribution, but not higher than the individual in the population with the highest exposure. Therefore, the RME scenario represents a “reasonable worst case” exposure scenario.

4.2.2 Exposure Point Concentrations

EPCs, which are calculated for COPCs only, are estimates of chemical concentrations in an EU and are used to estimate exposure intakes. An EU is the area over which receptor activity is expected. Hypothetical future residential exposures to impacted soils were also evaluated on a location-by-location basis to determine if an EU has any significant contaminant “hot spots” (i.e., do risk estimates for any particular EU exceed USEPA risk management benchmarks of $1x10^{-4}$ for cancer risk or 1 for non-cancer hazards). The location-by-location risk evaluation was conducted by estimating cancer risks and non-cancer hazards for the COPCs detected at each sampling location. The total cancer risks and hazards were then compared to the USEPA risk management benchmarks of $1x10^{-4}$ or 1, respectively. The location-by-location risk evaluation was based (conservatively) on residential receptors because risk estimates for residential receptors generally exceed those estimated for other less frequently/less intensively exposed receptors.

For EPC calculations, soil data were evaluated in the following data groups based on the results of the location-by-location risk evaluation (see Section 4.4): 1) a surface soil high concentrations data group, 2) a surface soil low concentrations group, and 3) entire site subsurface soil. The surface soil dataset was

divided into two data groupings because the results of the location-by-location risk evaluation for residential receptors indicated that surface soil concentrations detected in several EUs resulted in location-specific risks exceeding the upper threshold of the USEPA target cancer risk range ($1x10^{-4}$ to $1x10^{-6}$). EUs with location-specific cancer risks greater than $1x10^{-4}$ were EUs 28, 29, 38, 39, and 40 and are shown on Figure 4-3. These high-concentration EUs are adjacent to each other and are generally located in the central to eastern portion of the IOA. The BAP equivalents were the primary risk contributors to the location-specific risks exceeding $1x10^{-4}$ for these EUs. BAP equivalents concentrations exceeded 1000 µg/kg in at least one sample collected from the EUs in the high concentrations group, whereas all BAP equivalents concentrations detected in samples from the low concentrations EUs were less than 1000 µg/kg. The low concentrations data group includes the remaining EUs not included in the high concentrations data group. The results of the location-by-location risk evaluation are further discussed in Section 4.4.

Table 4-8 presents the RME EPCs for each COPC selected for surface and subsurface soil as well as the statistical values on which these EPCs are based. As noted previously, this HHRA evaluates only the RME scenario as a conservative approach to aid in risk management decision making. Generally, the 95 percent upper confidence limit (UCL) on the mean is selected as the EPC. EPCs were calculated following USEPA's Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002a) and using USEPA's ProUCL software Version 4.1.01 (USEPA, 2010b). If there were less than five samples or four positive detections in a data set or the 95 percent UCL exceeded the maximum detected concentration, then the maximum detected concentration was used as the EPC. Averages of original and duplicate samples were used in the calculation of EPCs. Non-detected values were evaluated in accordance with the ProUCL guidance. Appendix D-2 contains ProUCL output files.

In accordance with USEPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model (USEPA, 1994, 2009b) and their Technical Review Workgroup's (TRW) Adult Lead Model (ALM) (USEPA, 2003a), average lead concentrations were used to estimate blood-lead levels resulting from exposure to lead. This is because the first step in the model calculations is to develop a central estimate of blood-lead concentrations, which requires an "appropriate average concentration" for an individual.

Table 4-9 presents exposure assumptions for each receptor. The listed exposure assumptions were selected to be consistent with the current USEPA guidance.

4.2.3 Chemical Intake Estimation

The intake estimation methods and exposure assumptions used in this assessment are discussed below. The formulas used in estimating exposure intakes are also shown on the RAGS Part D Tables 4.1.RME to 4.8.RME presented in Appendix D-1.

Incidental Ingestion of Soil. Intakes associated with soil ingestion are estimated using the following equation (USEPA, 1989):

$$Intake_{si} = \frac{(C_{si})(IR_s)(FI)(EF)(ED)(CF)}{(BW)(AT)}$$

where:

Intake	=	ingestion intake
C_s	=	chemical concentration in soil (mg/kg)
IR_s	=	soil ingestion rate (mg/day)
FI	=	fraction ingested from contaminated source (unitless)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (1×10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
		for non-carcinogens: 365 days/year x ED
		for carcinogens: 365 days/year x 70 years

Incidental ingestion rates for potential receptors are based on the recommendations contained in the current risk guidance for the evaluation of the RME (USEPA, 2002b). Children are assumed to ingest more soil than adults as a result of normal behavior such as purposely placing dirty objects in their mouths and unintentional hand-to-mouth activities. For the RME scenario, the following ingestion rates are used to quantify risks: 200 milligrams per day (mg/day) for child residents and 100 mg/day for adult residents. The fraction of soil ingested from the contaminated source is conservatively assumed to be 1.0. Residents are assumed to be exposed to soil 350 days/year for 30 years (6 years child + 24 years adult) for the RME. Adults are assumed to weigh 70 kilograms (kg), and the weight of the child resident (0 to 6 years) is assumed to be 15 kg.

The exposure assumptions for incidental ingestion used for residents are also used for commercial receptors with the exception of exposure frequency and fraction ingested from the contaminated source. For commercial receptors, 0.5 was used as the fraction of soil ingested from the contaminated source because commercial receptors are expected to visit facility/open spaces for only a portion of the day. The exposure frequency for commercial receptors was 150 days/year, which assumes that these receptors visit facility/open spaces approximately three times per week.

Dermal Absorption of Soil. Doses for dermal contact with soil are estimated using the following equation (USEPA, 2004):

$$DAD_{si} = \frac{(C_{si})(SA)(AF)(ABS)(CF)(EF)(ED)}{(BW)(AT)}$$

where:

DAD_{si}	=	dermal absorbed dose (mg/kg-day)
C_s	=	chemical concentration in soil (mg/kg)
SA	=	skin surface area available for contact (cm^2/day)
AF	=	soil-to-skin adherence factor (mg/cm^2)
ABS	=	absorption factor (unitless)
EV	=	events frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (1×10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days) for non-carcinogens: 365 days/year x ED for carcinogens: 365 days/year x 70 years

Exposed surface areas of the body available for dermal contact are determined for each receptor based on assumed human activities and clothing worn during exposure events. USEPA guidance (USEPA, 1997b; 2004) was used to develop the default assumptions concerning the amount of skin surface area available for contact for a receptor. The skin surface areas used in risk assessment calculations and the rationale for the selection of the surface areas are defined as follows:

- For adult residents assumed to be exposed to soil, the exposed surface areas available for contact are the values for the adult skin surface area for exposure to soil recommended in RAGS Part E (USEPA, 2004), 5,700 cm^2 for the RME. This skin area assumes that the head, hands, forearms, and lower legs of the adult are available for contact.
- For child residents assumed to be exposed to soil, the exposed surface areas available for contact are the values for child skin surface area for exposure to soil recommended in RAGS Part E (USEPA, 2004), 2,800 cm^2 for the RME. This skin area assumes that the head, hands, forearms, lower legs, and feet of the child are available for contact.

The skin surface areas used to evaluate residential exposures to soil were also used to evaluate commercial receptor exposures to soil.

The soil to skin adherence factors and chemical-specific dermal absorption factors provided in RAGS Part E (USEPA, 2004) are used to evaluate risks from exposure to soil. The following soil adherence factors are used for the RME exposure scenarios:

- Adult residents – 0.07 mg/cm^2 for the RME (Exhibit 3.5, USEPA, 2004).
- Child residents – 0.2 mg/cm^2 for the RME (Exhibit 3.5, USEPA, 2004).

The soil to skin adherence factors used to evaluate residential exposures to soil were also used to evaluate commercial receptor exposures to soil.

For the chemicals identified as COPCs in soil, the following dermal absorption (DABS) factors are used in this HHRA (USEPA, 2004):

- PAHs – 0.13
- Aroclor-1260 – 0.14
- Arsenic – 0.03

The same exposure frequencies, exposure durations, and body weights previously identified for the ingestion route of exposure are used to characterize dermal contact with soil.

Inhalation of Air Containing Fugitive Dust Emitted from Soil. Intakes of both particulates and vapors/gases are calculated using the same equation, as follows (USEPA, 2009a):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT \times 24\ hours/day}$$

where:

EC	=	exposure concentration (mg/m3)
Cair	=	concentration of chemical in air (mg/m3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
BW	=	body weight (kg)
AT	=	averaging time (days);
	=	for noncarcinogens, AT = ED x 365 days/yr;
	=	for carcinogens, AT = 70 yr x 365 days/yr

The same exposure frequencies and durations used to estimate incidental ingestion of soil intakes are used to estimate exposure via inhalation of fugitive dust/volatile emissions for surface and subsurface soils. Residents were assumed to have an exposure time of 24 hours/day (USEPA, 1991), whereas commercial receptors were assumed to have an exposure time of 4 hours/day.

The concentrations of chemicals in air resulting from emissions from soil are developed following procedures presented in USEPA Soil Screening Guidance (USEPA, 2002b). The chemical concentration in air is calculated from:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF} + \frac{1}{VF}\right]$$

where:

Cair	=	chemical concentration in air, mg/m3
Cs	=	chemical concentration in soil, mg/kg
PEF	=	particulate emission factor, m3/kg
VF	=	volatilization factor, m3/kg

No volatile COPCs were identified in soil; therefore, Cair is equal to:

$$C_{air} = C_{soil} \times \frac{1}{PEF}$$

The particulate emissions factor (PEF) relates the concentration of the chemical in soil with the concentration of dust particles in air. A PEF value of $1.10 \times 10^{+10}$ m^3/kg was obtained from USEPA's Soil Screening Internet site located at http://rais.gov/epa/ssl1.shtml. This is the default value for Hartford, Connecticut, which is the closest city to former NAS South Weymouth listed on the Internet site.

Exposures to Lead

The equations and methodology presented in the previous section cannot be used to evaluate exposure to lead because of the absence of published dose-response parameters. Thus, exposure to lead was assessed using the following models:

- USEPA's IEUBK Model for Lead, Version 1.1, Build 11 (USEPA, 2010c); a model typically used to evaluate lead exposure assuming a residential land use scenario.
- USEPA's TRW Model for Lead, Version Date: 06/21/2009 (USEPA, 2003a; 2009b); a model typically used to evaluate lead exposure assuming a non-residential land use scenario.

The IEUBK model for lead (USEPA, 1994; 2009b) is designed to estimate blood levels of lead in children under 7 years old, based on either default or site-specific input values for air, drinking water, diet, dust, and soil exposure. Studies indicate that infants and young children are extremely susceptible to adverse effects from exposure to lead. Considerable behavioral and developmental impairments have been noted in children with elevated blood lead levels. The threshold for toxic effects from this chemical is believed to be in the range of 10–15 µg/dL. Blood lead levels greater than 10 µg/dL are considered a "concern."

The IEUBK model for lead is used to address exposure to lead in children when detected soil concentrations exceed the Office of Solid Waste and Emergency Response (OSWER) soil screening level of 400 mg/kg for residential land use (USEPA, 1994). Average chemical concentrations, as well as default parameters for some input parameters, are used in the evaluation. Lead concentrations in soil are evaluated qualitatively in Section 4.4 to determine if using the IEUBK model would be necessary in the HHRA.

Non-residential adult exposures to lead in soil are evaluated using USEPA's TRW model for lead (USEPA, 2003a; 2009c). In this model, adult exposure to lead in soil is addressed by evaluating the relationship between lead concentration in site soil and the blood lead concentration in the developing fetuses of adult women. The adult lead model generates a spreadsheet for each exposure scenario evaluated (i.e., commercial). The spreadsheet output is the probability that blood lead concentrations in the fetus will exceed 10 µg/L. That probability is calculated in accordance with the following USEPA guidelines:

- Use of the TRW Interim Adult Lead Methodology in Risk Assessment (USEPA, 1999)
- Frequently Asked Questions (FAQs) on the ALM (USEPA, 2012a)

Lead concentrations in soil data are evaluated qualitatively in Section 4.4 to determine if using the TRW model would be necessary in the HHRA.

Assessing Cancer Risks from Early Life Exposures

USEPA's Guidelines for Carcinogen Risk Assessment (USEPA, 2005a) and Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b) recommend making adjustments to the toxicity of carcinogenic chemicals which act via the mutagenic mode of action when evaluating early life exposures. The guidance recommends using age dependent adjustment factors (ADAFs) combined with age specific exposure estimates when assessing cancer risks. In the absence of chemical specific data the supplemental guidance recommends the following default adjustments which reflect that cancer risks are generally higher from early-life exposures than from similar exposures later in life:

- For exposures before 2 years of age (i.e., spanning a 2-year interval from the first day of birth up until a child's second birthday), a 10-fold adjustment.
- For exposures between 2 and < 16 years of age (i.e., spanning a 14-year time interval from a child's second birthday up until their sixteenth birthday), a 3-fold adjustment.
- For exposures after turning 16 years of age, no adjustment.

The adjustments were applied using the same method used by USEPA in the development of the RSLs. Children were evaluated as two age groups, ages 0 to 2 years and ages 2 to 6 years; and adults were evaluated as two age groups, ages 6 to 16, and ages greater than 16 years old. Using this approach the intakes for commercial receptors and hypothetical residents were calculated as follows:

$$Intake_{Child} = Intake_{(ages\ 0 - 2\ years)} \times 10 + Intake_{(ages\ 2 - 6\ years)} \times 3$$

$$Intake_{Adult} = Intake_{(ages\ 6 - 16\ years)} \times 3 + Intake_{(ages > 16\ years)}$$

The above approach was used only for those chemicals which are identified as mutagenic in the USEPA screening table (e.g., cPAHs, hexavalent chromium). Sample calculations demonstrating this approach are included in Appendix D-3.

4.3 TOXICITY ASSESSMENT

The toxicity assessment seeks to identify potential adverse health effects in exposed populations. Quantitative estimates of the relationship between the magnitude and type of exposures and the severity or probability of human health effects are defined for the identified chemicals of concern. Quantitative toxicity values determined during this component of the risk assessment are integrated with exposure assessment outputs to characterize the potential occurrence of adverse health effects for each receptor group.

The RfD is the toxicity value used to evaluate non-carcinogenic health effects for ingestion and dermal exposures. The reference concentration (RfC) is used to evaluate non-carcinogenic health effects for inhalation exposures. The RfD and RfC estimate a daily exposure level for a human population that is unlikely to pose an appreciable risk during a portion or for all of a human lifetime. It is based on a review of animal and/or human toxicity data, with adjustments for various data uncertainties. Carcinogenic effects are quantified using the cancer slope factor (CSF) for ingestion and dermal exposures, and using inhalation unit risks (IURs) for inhalation exposure that are plausible upper-bound estimates of the probability of the development of cancer per unit intake of the chemical over a lifetime. These are typically based on dose-response data from human and/or animal studies.

Toxicity Criteria for Oral and Inhalation Exposures

Oral RfDs and CSFs and inhalation RfCs and IURs used in the streamlined risk assessment were obtained from the following primary USEPA literature sources selected per USEPA guidance (USEPA, 2003b):

- Tier 1 - Integrated Risk Information System (IRIS) (USEPA, 2013).
- Tier 2 - EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) — The Office of Research and Development/National Center for Environmental Assessment (NCEA) Superfund Health Risk Technical Support Center develops chemical-specific PPRTVs when requested by USEPA's Superfund program.
- Tier 3 - Other toxicity values — These sources include, but are not limited to, California Environmental Protection Agency (Cal EPA) toxicity values, Agency for Toxic Substances and Disease Registry (ATSDR) values, and the Annual Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997a).

Although toxicity criteria can be found in several toxicological sources, USEPA's IRIS online database is the preferred source of toxicity values. This database is continuously updated, and its values are verified by USEPA.

Toxicity Criteria for Dermal Exposure

RfDs and CSFs in the scientific literature are typically expressed as "administered" (i.e., not absorbed) doses. Therefore, these values are considered inappropriate for estimating risks associated with dermal exposures. Oral dose-response parameters based on administered doses must be adjusted to absorbed doses before they can be compared to estimated dermal exposure intakes.

When oral absorption is essentially complete (i.e., 100 percent), an absorbed dose is equivalent to the administered dose, and therefore no toxicity adjustment is necessary. Conversely, when the gastrointestinal absorption of a chemical is poor (e.g., 1 percent), the absorbed dose is smaller than the administered dose; thus, toxicity factors based on absorbed dose should be adjusted to account for the difference in the absorbed dose relative to the administered dose. USEPA (USEPA, 2004) recommends a 50-percent absorption cut-off to reflect the intrinsic variability in analyzing absorption studies. Therefore, the adjustment from administered to absorbed dose was only performed when the chemical-specific gastrointestinal absorption efficiency was less than 50 percent. The adjustment from administered to absorbed dose was made using chemical-specific gastrointestinal absorption efficiencies published in numerous sources of guidance [e.g., USEPA, 2004 (the primary reference), IRIS, ATSDR toxicological profiles, etc.] using the following equations:

$$RfD_{dermal} = (RfD_{oral})(ABS_{GI})$$
$$CSF_{dermal} = (CSF_{oral})/(ABS_{GI})$$

where:

ABS_{GI}	=	absorption efficiency in the gastrointestinal tract
RfD_{dermal}	=	reference dose for dermal exposures
RfD_{oral}	=	reference dose for oral exposures
CSF_{dermal}	=	cancer slope factor for dermal exposures
CSF_{oral}	=	cancer slope factor of oral exposures

As noted, the preceding adjustment of the oral toxicity criteria (i.e., RfDs, CSFs) is necessary so that the dermal route of exposure may be quantitatively evaluated in the baseline risk assessment. Further explanation of this procedure and its necessity are presented in Appendix A of USEPA's RAGS Part A.

Toxicity Criteria for Benzo(a)pyrene and Related cPAHs

USEPA's Guidelines for Carcinogen Risk Assessment (USEPA, 2005a), and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. Benzo(a)pyrene and related cPAHs are

included in the group of chemicals that have been determined to act via the mutagenic mode of action. No chemical-specific ADAFs have been derived for benzo(a)pyrene; therefore, the following default ADAFs were applied: 10 for ages 0 to 2; 3 for ages 2 to 16; and 1 (no adjustment) for ages 16 to 70. The ADAFs were used in evaluating exposures to BAP equivalents for commercial receptors and hypothetical residents using the approach presented in Section 4.2.3.

Toxicity Criteria for Chromium

Toxicity criteria are available for different forms of chromium (trivalent and hexavalent), where the hexavalent form is considered to be more toxic. In the absence of chromium speciation into its different valence states, it is conservatively assumed that all the chromium exists in its hexavalent form. Hexavalent chromium has carcinogenic and non-carcinogenic toxicity factors. However, hexavalent chromium is a carcinogen that acts via a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (USEPA, 2005a), and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action.

No chemical-specific ADAF is available for hexavalent chromium; therefore, USEPA's default ADAFs are applied to the carcinogenic toxicity factors for hexavalent chromium. The following default ADAFs were applied: 10 for ages 0 to 2; 3 for ages 2 to 16; and 1 (no adjustment) for ages 16 to 70. The ADAFs were used in evaluating exposures to chromium for adolescent trespassers and hypothetical residents using the approach presented in Section 4.2.3. Non-carcinogenic effects are evaluated like all non-carcinogens in accordance with USEPA's risk assessment guidance (USEPA, 1989).

Toxicity of PCBs

The HHRA for PCBs was conducted per the guidance presented in USEPA's *National Center for Environmental Assessment Office of Research and Development publication PCBs: Cancer Dose Response Assessment and Application to Environmental Mixtures* (USEPA, 1996b). This guidance presents a tiered approach to assessing the risks of PCBs. A range of CSFs for PCBs is presented for use in HHRA according to criteria that consider the environmental media under investigation, the type of exposure, and the anticipated persistence, bioaccumulation potential, and toxicity of PCB homologues/congeners detected in the samples.

No non-carcinogenic toxicity criteria are available for Aroclor-1260. However, non-carcinogenic criteria are available for Aroclor-1254. Because Aroclor-1260 was frequently detected, toxicity criteria for Aroclor-1254 were used to evaluate the potential for non-cancer health effects resulting from exposure to Aroclor-1260. Uncertainty associated with using the non-cancer toxicity criteria for Aroclor-1254 as a surrogate for Aroclor-1260 is discussed in Section 4.5.

Tables 4-10, 4-11, 4-12, and 4-13 present RfDs, RfCs, CSFs, and IURs, respectively, for the identified COPCs.

4.4 RISK ESTIMATES

The following table summarizes the risk estimate calculation tables for this HHRA in USEPA RAGS Part D (USEPA, 2001) format:

RISK ESTIMATE CALCULATION TABLES				
Calculation of Cancer Risks and Non-cancer Hazards	Commercial Receptor	Child	Surface and Subsurface Soil	Appendix D-1 Table 7.1
		Adult	Surface and Subsurface Soil	Appendix D-1 Table 7.2
	Resident	Child	Surface and Subsurface Soil	Appendix D-1 Table 7.3
		Adult	Surface and Subsurface Soil	Appendix D-1 Table 7.4
Summary of Receptor Risks and Hazards for COPCs	Commercial Receptor	Child	Surface and Subsurface Soil	Appendix D-1 Table 9.1
		Adult	Surface and Subsurface Soil	Appendix D-1 Table 9.2
		Lifelong	Surface and Subsurface Soil	Appendix D-1 Table 9.3
	Resident	Child	Surface and Subsurface Soil	Appendix D-1 Table 9.4
		Adult	Surface and Subsurface Soil	Appendix D-1 Table 9.5
		Lifelong	Surface and Subsurface Soil	Appendix D-1 Table 9.6

Cancer risk estimates and non-cancer HQs for each contaminant and hazard indices (HIs) for each pathway are shown in Appendix D-1, Tables 7.1 through 7.4. Tables 9.1 through 9.6 in Appendix D-1 present a summary of the non-cancer and cancer risks calculated for the COPCs. Tables 9.3 and 9.6 present the lifelong (adult + child) cancer risks for commercial receptors and residents, respectively. Sample calculations are presented in Appendix D-3. Appendix D-1 contains all report tables presented in RAGS Part D format.

Estimated location-specific risks and hazards are also discussed in this section. Appendix D-4 contains the results of the location-by-location risk evaluation, and Figures 4-2 through 4-5 display calculated non-cancer hazards and cancer risks at each location evaluated for surface or subsurface soil, respectively.

The results of the risks evaluated using the data groupings discussed in Section 4.2 are presented in the following table and discussed below.

SUMMARY OF HAZARD INDICES AND CANCER RISKS

Exposure Scenario			Results	
			Hazard Index	Cancer Risk
Commercial Receptors	Child	Surface soil – high concentrations area	0.4	1E-04
		Surface soil – low concentrations area	0.6	1E-05
		Subsurface soil	0.1	1E-05
	Adult	Surface soil – high concentrations area	0.05	2E-05
		Surface soil – low concentrations area	0.07	3E-06
		Subsurface soil	0.01	2E-06
	Lifelong	Surface soil – high concentrations area	NA	1E-04
		Surface soil – low concentrations area	NA	2E-05
		Subsurface soil	NA	1E-05
Residents	Child	Surface soil – high concentrations area	2[(1)]	5E-04
		Surface soil – low concentrations area	3[(1)]	6E-05
		Subsurface soil	0.6	4E-05
	Adult	Surface soil – high concentrations area	0.2	8E-05
		Surface soil – low concentrations area	0.3	1E-05
		Subsurface soil	0.06	8E-06
	Lifelong	Surface soil – high concentrations area	NA	6E-04
		Surface soil – low concentrations area	NA	7E-05
		Subsurface soil	NA	5E-05

Notes:
NA - not applicable.
[(1)] The target organ-specific HIs do not exceed 1.

Non-cancer Hazards

Non-cancer HIs are less than USEPA's target of 1 for all receptors exposed to COPCs in subsurface soil. HIs for child and adult commercial receptors and adult residents exposed to COPCs in surface soil in the high concentrations area and the low concentrations area are less than 1. Therefore, no adverse non-cancer human health effects are anticipated for these receptors under the conditions established in the exposure assessment.

The non-cancer HI for the child resident exposed to COPCs in high concentrations area surface soil exceeds 1 (HI = 2); however, the target organ-specific HIs do not exceed 1, as shown below (see Table 9.4 in Appendix D).

Target Organ-Specific HIs for Child Resident – High Concentrations Area Surface Soil	
Total Central Nervous System (CNS) HI	0.2
Total Cardiovascular System (CVS) HI	0.3
Total Gastrointestinal (GS) HI	0.3
Total Immune HI	0.06
Total Liver HI	0.2
Total Respiratory HI	0.0001
Total None Specified HI	0.4
Total Skin HI	0.3
Total Thyroid HI	0.2
Total Reproductive HI	0.2

Additionally, the non-cancer HI for the child resident exposed to COPCs in low concentrations area surface soil exceeds 1 (HI = 3); however, the target organ-specific HIs do not exceed 1, as shown below (see Table 9.4 in Appendix D).

Target Organ-Specific HIs for Child Resident – Low Concentrations Area Surface Soil	
Total CNS HI	0.2
Total CVS HI	0.3
Total GS HI	0.3
Total Immune HI	1
Total Liver HI	0.008
Total Respiratory HI	0.00007
Total None Specified HI	0.04
Total Skin HI	0.3
Total Thyroid HI	0.2
Total Reproductive HI	0.2

Therefore, no adverse non-cancer human health effects are anticipated for this receptor under the conditions established in the exposure assessment.

Cancer Risks

Cancer risk estimates for all receptors exposed to COPCs in surface soil in the low concentrations area and subsurface soil are within USEPA's target cancer risk range of $1x10^{-4}$ to $1x10^{-6}$. The cancer risk estimates for child, adult, and lifelong commercial receptors and adult residents exposed to COPCs in surface soil in the high concentrations areas are also within USEPA's target cancer risk range. Therefore, no risk drivers are identified based on these evaluations.

Cancer risk estimates for child and lifelong residents exposed to COPCs in surface soil in the high concentrations area exceed USEPA's target cancer risk range [the incremental lifetime cancer risks (ILCRs) are 5E-04 and 6E-04, respectively], primarily due to cPAHs and chromium (evaluated using hexavalent chromium toxicity criteria). Uncertainty associated with the toxicity criteria for chromium is discussed in Section 4.5. Heptachlor epoxide and arsenic were also risk drivers for child residents, arsenic was also a risk driver for adult residents, and heptachlor epoxide, 2,3,7,8-TCDD equivalents, and arsenic were also risk drivers for lifelong residents.

Lead Risks

Lead was selected as a COPC in surface soil. As shown in Table 4-8, EPCs for lead (i.e., arithmetic mean concentrations) are less than the residential soil screening level of 400 mg/kg for surface soil in both the high concentrations and low concentrations areas. Therefore, these lead EPCs were not further assessed using the lead models described in Section 4.2.

4.4.1 Location-By-Location Risk Estimates

The location-by-location risk estimate results are presented in Appendix D-4. Figures 4-2, 4-3, 4-4, and 4-5 display the results of the point-by-point risk estimates for surface soil non-cancer risks, surface soil cancer risks, subsurface soil non-cancer risks, and subsurface soil cancer risks, respectively

Non-cancer Hazards – Location-by-Location Estimates

As shown on Figure 4-2, HIs calculated for sample locations within EUs 8, 10, 15, 17, 39, 43, and 49 exceed 1. The HI exceedances for EUs 8, 10, and 15 are due to Aroclor-1260 (calculated using non-cancer toxicity criteria for Aroclor-1254), as no results are available for other COPCs in the samples with HI exceedances. The following table displays the Aroclor-1260 results and associated HIs for the sampling locations within EUs 8, 10, and 15 with HIs exceeding 1.

Estimated HIs Exceeding 1 for Aroclor-1260 in EUs 8, 10, and 15

EU (Sample Identifier)	Estimated HI	Aroclor-1260 Concentration (µg/kg)
EU 8 (SB07-308-NSO-1104025)	1.6	1800
EU 10 (IOA-SS-EU10-0002)	11	12000
EU 15 (SB07-327-NSO-0716031)	2.6	2900

Aroclor-1260 is the only chemical contributing to the HIs in the samples listed above, the target organ HIs (immune system) for each of these sample locations also exceeds 1, and Aroclor-1260 is a primary risk driver for each of these sample locations. The detected concentrations of Aroclor-1260 reported for these locations were greater than 1 mg/kg, which is a federal Toxic Substances Control Act (TSCA) soil cleanup level for high occupancy areas (USEPA, 2005c). Aroclor-1260 detections near sample SB07-308-NSO-1104025 in EU 8 (e.g., at locations SB07-307 and SB07-330) are more than an order of magnitude less than those reported for the sample SB07-308-NSO-1104025. In EU 15, Aroclor-1260 detections at nearby locations (e.g., SB07-311 and SB07-326) are less than the concentration detected in SB07-327-NSO-0716031, but concentrations of Aroclor-1260 detected at locations SB07-326 and SB07-329 within EU 15 exceed 1000 µg/kg. In EU-17 (discussed below), Aroclor-1260 was detected at nearby sample location IOA-SS-EU17-0002 at a concentration of 1800 µg/kg.

In EUs 17, 39, 43, and 49, multiple chemicals contribute to the HI exceedances. The HI exceedances in the four EUs are discussed in greater detail below.

The chemicals contributing to the HI exceeding 1 for EU 17 (in sample IOA-SS-EU17-0002) and the associated target organs are summarized below.

Estimated HI for Sample IOA-SS-EU17-0002 (EU 17)

Chemical	Estimated HQ	Target Organ
Aroclor-1260	1.6	Immune
Aluminum	0.079	CNS
Arsenic	0.055	Skin, CVS
Chromium	0.052	None Specified
Cobalt	0.12	Thyroid
Iron	0.27	GS
Manganese	0.22	CNS

The target organ-specific total HIs are: **Total Immune = 1.6**; Total CNS = 0.30; Total Thyroid = 0.12; Total CVS = 0.055; Total None Specified = 0.052; Total GS = 0.27; and Total Skin = 0.055. Only the target organ-specific HI for the immune system exceeds 1; therefore, Aroclor-1260 is identified as a primary risk driver.

The chemicals contributing to the HI exceeding 1 for EU 39 (in sample SB06005-NSO-120898-0) and the associated target organs are summarized below.

Estimated HI for Sample SB06005-NSO-120898-0 (EU 39)

Chemical	Estimated HQ	Target Organ
Aroclor-1260	0.016	Immune
Heptachlor Epoxide	0.027	Liver
Aluminum	0.12	CNS
Arsenic	0.37	Skin, CVS
Chromium	0.65	None Specified
Cobalt	0.26	Thyroid
Iron	0.29	GS
Manganese	0.12	CNS

The target organ-specific total HIs are: Total Immune = 0.016; Total CNS = 0.24; Total Liver = 0.027; Total Thyroid = 0.26; Total CVS = 0.37; Total None Specified = 0.65; Total GS = 0.29; and Total Skin = 0.37. The target organ-specific HIs for EU 39 do not exceed 1; therefore, no primary risk drivers are identified.

The chemicals contributing to the HI exceeding 1 for EU 43 (in sample IOA-SS-EU43-0002) and the associated target organs are summarized below.

Estimated HI for Sample IOA-SS-EU43-0002 (EU 43)

Chemical	Estimated HQ	Target Organ
Aroclor-1260	0.63	Immune
Aluminum	0.099	CNS
Arsenic	0.095	Skin, CVS
Chromium	0.048	None Specified
Cobalt	0.17	Thyroid
Iron	0.29	GS
Manganese	0.17	CNS
2,3,7,8-TCDD Equivalents	0.21	Reproductive

The target organ-specific total HIs are: Total Immune = 0.63; Total CNS = 0.099; Total Thyroid = 0.17; Total CVS = 0.095; Total None Specified = 0.048; Total GS = 0.29; Total Skin = 0.095; and Total Reproductive = 0.21. The target organ-specific HIs for EU 43 do not exceed 1; therefore, no primary risk drivers are identified.

The chemicals contributing to the HI exceeding 1 for samples in EU 49 (in sample IOA-SS-EU49-0002) and the associated target organs are summarized below.

Estimated HI for Sample IOA-SS-EU49-0002 (EU 49)

Chemical	Estimated HQ	Target Organ
Aroclor-1260	0.0033	Immune
Aluminum	0.083	CNS
Arsenic	1.6	Skin, CVS
Chromium	0.034	None Specified
Cobalt	0.17	Thyroid
Iron	0.82	GS
Manganese	0.16	CNS

The target organ-specific total HIs are: Total Immune = 0.0033; Total CNS = 0.24; Total None Specified = 0.034; **Total CVS = 1.6; Total Skin = 1.6;** Total GS = 0.82; and Total Thyroid = 0.17. The target organ-specific HIs for CVS and skin exceed 1 due to arsenic; therefore, arsenic is identified as a primary risk driver for EU 49. The concentration of arsenic detected in EU 49 (36 mg/kg) is approximately three times greater than the second-greatest arsenic detection in the IOA (11 mg/kg). As a point of comparison, the Base background surface soil value for arsenic is 5.3 mg/kg.

As shown on Figure 4-4, no subsurface soil sample locations have location-by-location HIs exceeding 1. Therefore, no non-cancer primary risk drivers are identified for subsurface soil based on the location-by-location evaluation.

Cancer Risks – Location-by-Location Estimates

As shown on Figure 4-3, cancer risk estimates calculated for sample locations in EUs 28, 29, 38, 39, and 40 exceed $1x10^{-4}$. The exceedances are primarily due to cPAHs, and these EUs were grouped into the "high concentrations" group. At EU 28, heptachlor epoxide, arsenic, and chromium are also risk contributors, as the ILCRs for these chemicals exceed $1x10^{-6}$. Arsenic and chromium are also risk drivers at EUs 29, 38, 39, and 40. Chromium was conservatively evaluated using toxicity criteria for hexavalent chromium; uncertainty associated with the toxicity criteria used for chromium is discussed in Section 4.5.

As shown on Figure 4-5, cancer risk estimates calculated for subsurface soil samples on a location-by-location basis do not exceed $1x10^{-4}$. Therefore, no primary risk drivers are identified for subsurface soil based on the location-by-location cancer risk evaluation.

Lead Risks – Location-by-Location Estimates

Two of three lead concentrations detected in EU 39 exceeded the residential soil screening level of 400 mg/kg. Lead concentrations did not exceed the screening level in any other samples or EUs. The lead concentrations detected in EU 39 surface soil were 1280 mg/kg, 550 mg/kg (original sample), 503 mg/kg (average sample), 456 mg/kg (duplicate sample), and 32.1 mg/kg. The arithmetic mean lead concentration for EU 39 (calculated using the average of the original and duplicate samples) is 605

mg/kg. The mean lead concentration exceeds 400 mg/kg, lead risks were assessed using the IEUBK and TRW models, as described in Section 4.2.

Hypothetical future residential exposures to lead in subsurface soil were evaluated using USEPA's IEUBK lead model (USEPA, 1994; 2010c). The most recent version of this model (Version 1.1, Build 11) was used for the analysis. As recommended in the model's documentation, the average lead concentration of 605 mg/kg for EU 39 surface soil was used as the EPC. The IOA groundwater data presented in Appendix C show that lead was not detected in groundwater in EU 39; therefore, the IEUBK default value for lead in drinking water, 4 µg/L, was used as an input to be conservative. Default values were used for the remaining model input parameters. IEUBK model outputs are included in Appendix D-5. A young child resident (0 to 6 years of age) is the receptor of concern. The lead mean concentration of 605 mg/kg results in approximately 14.7 percent of future on-site child residents having a blood-lead level greater than 10 µg/dL and results in a geometric mean blood-lead level of 6.1 µg/dL. These results are at variance with the USEPA goal as described in the 1994 OSWER Directive of no more than 5 percent of children exceeding a 10 µg/dL blood-lead level. Therefore, lead in EU 39 is identified as a primary risk driver and COC for EU 39. However, note that if the maximum lead concentration of 1280 mg/kg were excluded from the evaluation, the mean lead concentration in EU 39 would be less than 400 mg/kg, and therefore no adverse effects would be anticipated for residential exposure to lead.

Risks to adult commercial receptors exposed to lead in soil were evaluated using a slope factor approach developed by the USEPA TRW for lead (USEPA, 2003a; 2009b). As the model (often referred to as the ALM) recommends, average lead concentrations in surface soil were used as the EPCs, and central tendency exposure (CTE) assumptions were used to estimate receptor intake (USEPA, 2003a; 2009b). Based on this information, the incidental soil ingestion rate was assumed to be 50 mg/day for adult commercial receptors (USEPA, 2003a; 2009b). An exposure frequency of 75 days per year (i.e., one-half the RME exposure frequency) was assumed for the adult commercial receptor. Values of 1.8 and 1.0 µg/dL were used for the standard deviation and baseline blood-lead concentration, respectively, (USEPA, 2009b). Default parameters were used for the remaining model input parameters. The results of the model run are included in Appendix D-5. The fetus of a pregnant worker is the ultimate receptor of concern for the TRW model.

The lead mean concentration of 605 mg/kg results in approximately 0.01 percent of receptors of a having a blood-lead level greater than 10 µg/dL and results in a geometric mean blood-lead level of 1.3 µg/dL. The results for adult commercial receptors are not at variance with the USEPA goal of no more than 5 percent of children (fetuses of exposed women) exceeding a 10 µg/dL blood lead level.

4.4.2 Chemicals Potentially Attributable to Background

Several chemicals were eliminated as COPCs on the basis of screening against background values during the COPC selection process. In surface soil, thallium and vanadium concentrations were within the background values. In subsurface soil, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, aluminum, manganese, and thallium concentrations were within the background values. However, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene concentrations were incorporated into BAP equivalents concentrations, and benzo(a)pyrene equivalents were evaluated in the quantitative HHRA because some of the individual cPAHs in subsurface soil exceeded screening criteria and background values. Therefore, these three cPAHs were already evaluated quantitatively. Thallium and vanadium in surface soil and aluminum, manganese, and thallium in subsurface soil were evaluated quantitatively to present total risks (i.e., site-related risks plus background risks). The results of the quantitative evaluation of chemicals with concentration within the background values are presented below, and associated risk spreadsheets are presented in Appendix D-6.

RISK ESTIMATES INCLUDING CHEMICALS OMITTED FROM THE HHRA ON THE BASIS OF BACKGROUND SCREENING – RME SCENARIO		
Receptor	**HI[(1)]**	**ILCR[(1)]**
Surface Soil – High Concentrations Area		
Child Commercial Receptor	0.4 (0.4)	1E-04 (1E-04)
Adult Commercial Receptor	0.05 (0.05)	2E-05 (2E-05)
Lifelong Commercial Receptor	NA	1E-04 (1E-04)
Future Child Resident	2[(2)] (2[(2)])	5E-04 (5E-04)
Future Adult Resident	0.2 (0.2)	8E-05 (8E-05)
Lifelong Resident	NA	6E-04 (6E-04)
Surface Soil – Low Concentrations Area		
Child Commercial Receptor	0.6 (0.7)	1E-05 (1E-05)
Adult Commercial Receptor	0.07 (0.09)	3E-06 (3E-06)
Lifelong Commercial Receptor	NA	2E-05 (2E-05)
Future Child Resident	3[(2)] (3[(2)])	6E-05 (6E-05)
Future Adult Resident	0.3 (0.3)	1E-05 (1E-05)
Lifelong Resident	NA	7E-05 (7E-05)
Subsurface Soil		
Child Commercial Receptor	0.1 (0.2)	1E-05 (1E-05)
Adult Commercial Receptor	0.01 (0.02)	2E-06 (2E-06)
Lifelong Commercial Receptor	NA	1E-05 (1E-05)
Future Child Resident	0.6 (0.9)	4E-05 (4E-05)
Future Adult Resident	0.06 (0.1)	8E-06 (8E-06)
Lifelong Resident	NA	5E-05 (5E-05)

[(1)] – Risk values not in parentheses are medium-specific risks calculated in the HHRA for COPCs only. Risk values shown in parentheses include chemicals eliminated on the basis of screening against background values.

(2) – Target organ-specific HIs do not exceed 1.
NA – Not applicable.

As shown in the table, cancer risks are equal whether chemicals with concentrations within the background values are included or excluded from the evaluation. HIs are slightly greater but are less than 1 on a target organ-specific basis for all receptors and data sets evaluated.

4.5 UNCERTAINTY ANALYSIS

There are uncertainties associated with all HHRAs. This section summarizes these uncertainties, and discusses how they may affect the final risk estimates discussed in Section 4.4.

There is uncertainty associated with all steps of the risk assessment process. Uncertainty in the data evaluation is associated with sampling adequacy, the current status of the predictive databases for development of screening values, the procedures used to include or exclude chemicals as COPCs, and the methods used and the assumptions made to determine EPCs. The selection of COPCs is based on exposure assumptions and toxicity information which in turn have associated uncertainties. Uncertainty associated with the exposure assessment includes the values used as input variables for a given intake route and the predictions regarding future land use and population characteristics. Uncertainty in the toxicity assessment includes the quality of the existing data to support dose-response relationships and the weight-of-evidence used for determining the carcinogenicity of COCs. Uncertainty in risk characterization includes that associated with exposure to multiple chemicals and the cumulative uncertainty from combining conservative assumptions made in earlier activities.

While there are various sources of uncertainty (as described above) throughout the risk assessments, assumptions were made in this HHRA so that the final calculated risks would be conservative estimates that are protective of public health. Each uncertainty mentioned above is discussed below.

Existing Databases

As discussed in Section 4.1, data from samples collected during several field investigations were used to assess risks to potential human receptors. These data were validated according to USEPA data validation guidelines. Only fixed base analytical results (i.e., results from a fixed base laboratory, not field analytical results) from the field investigations for the target analyte lists were used in the quantitative risk evaluation. Data regarded as rejected (i.e., qualified as “R” during data validation) were not used in the quantitative risk assessment. Elimination of data qualified as “R” may increase uncertainty in the risk assessment.

COPC Screening Levels

The use of risk-based screening levels for soil and groundwater based on conservative residential land use scenarios and corresponding to an ILCR of $1x10^{-6}$ and HQ of 0.1 should make certain that the

significant contributors to risk from a site are evaluated. The elimination of chemicals that are present at concentrations that correspond to an ILCR less than $1x10^{-6}$ and an HQ less than 0.1 should not affect the final conclusions of the risk assessment because these chemicals are not expected to cause a potential health concern at the concentrations detected.

Absence of COPC Screening Levels

RSLs are not available for calcium, magnesium, sodium, and potassium because toxicity criteria are not available for these metals. However, these metals are essential nutrients, commonly detected in environmental media, and receptor risks should not be underestimated because these nutrients are not selected as COPCs.

Risk-based screening levels for direct contact are not currently available for several organic chemicals detected in soil at the IOA (i.e., acenaphthylene, benzo(g,h,i)perylene, phenanthrene, alpha- and gamma-chlordane, endosulfan II, endosulfan sulfate, endrin aldehyde, and endrin ketone). The screening levels available for acenaphthene were used as surrogate screening levels for acenaphthylene, and the screening levels for pyrene were used as surrogate screening levels for benzo(g,h,i)perylene and phenanthrene because these compounds have similar chemical structures. Similarly, the screening levels available for chlordane were used as surrogate screening levels for alpha- and gamma-chlordane, the screening levels for endosulfan were used as surrogate screening levels for endosulfan II and endosulfan sulfate, and the screening levels for endrin were used as surrogate screening levels for endrin aldehyde and endrin ketone. The use of these surrogates may increase the uncertainty in the risk assessment. The direction of bias cannot be determined.

No screening level or surrogate screening level was available for carbazole. Carbazole was detected in 6 of 25 surface soil samples. The maximum concentration of carbazole in surface soil is 2200 µg/kg, and the Base background value for carbazole in surface soil is 130 µg/kg. Concentrations of cabazole in surface soil exceeding the background value were detected in EUs 28, 38, and 39. These EUs were included in the high concentrations area; therefore, carbazole detections exceeding background are co-located with other soil contaminants. Consequently, the HHRA conclusions are unlikely to be affected by the lack of COPC screening levels for carbazole.

Exposure Point Concentrations

Uncertainty is associated with the use of the 95 percent UCL on the mean concentration as the EPC. As a result of using the 95 percent UCL, the estimations of potential risk are most likely overestimated because this is a representation of the upper limit that potential receptors would be exposed to over the entire exposure period. In some cases (because data sets contained less than five samples or because there were less than four positive detections), the maximum concentration was used as the EPC. Using

the maximum concentration tends to overestimate potential risks because receptors are assumed to be continuously exposed to the maximum concentration for the entire exposure period.

For the risk estimates based on the data groupings, the EPCs calculated for the low concentrations area surface soil data set were similar to or less than the EPCs calculated for the high concentrations area data set with the exception of Aroclor-1260. As shown in Table 4-8, the Aroclor-1260 EPC for the low concentrations area data set (1.5 mg/kg) is considerably greater than the EPC for the high concentrations area data set (0.063 mg/kg). Aroclor-1260 was not identified as a risk driver in either the high concentrations area or low concentrations area data sets. However, Aroclor-1260 was identified as a risk driver for the future resident receptor in the location-by-location evaluation for EUs 8, 10, 15, and 17. Aroclor-1260 concentrations detected at one or more locations in EUs 8, 10, 15, and 17 were also greater than 1 mg/kg, which is a federal TSCA soil cleanup level for high occupancy areas (USEPA, 2005c).

Land Use

Uncertainty and conservatism may be introduced into the risk assessment when estimated risks are projected for future land use patterns. The risks calculated in this HHRA are based on projected land use at the IOA Site based on the zoning established by SSTTDC. There are no current receptors at the IOA, but future commercial and residential receptors are possible based on the allowable uses in the zoning districts within the IOA. Commercial receptors were evaluated because portions of the Site are zoned for future commercial land use. Residential receptors were evaluated in the risk assessment because portions of the Site are also zoned for residential land use. Evaluating residential receptors is also protective of any potential current use or future use because the residential scenario is based on the most conservative exposure assumptions. Risks to non-residential receptors are anticipated to be less than risks for residential receptors.

Exposure Parameters

Each exposure factor selected for use in the risk assessment contains some associated uncertainty. Generally, exposure factors are based on surveys of physiological and lifestyle profiles across the United States. The attributes and activities studied in these surveys generally have a broad distribution. To avoid underestimation of exposure, USEPA guidelines (e.g., USEPA, 2004) for the RME receptor were used, if applicable. The guidelines generally specify the use of the 95th percentile for most parameters. Therefore, the selected exposure factors for the RME receptor represent the upper bound of the observed or expected practices which are characteristic of the majority of the population.

Generally, uncertainty can be assessed for many assumptions made in determining the factors used to calculate exposures and intakes. Many of these parameters were determined from the statistical analyses of human population characteristics. Often, the database used to summarize a particular

exposure parameter (i.e., body weight) is quite large. Consequently, the values chosen for such variables in the RME scenario have low uncertainty. For many parameters for which limited information exists (e.g., dermal absorption), greater uncertainty exists. For example, current USEPA guidance (USEPA, 2004) does not provide dermal absorption factors for exposure to most metals (except arsenic and cadmium) and VOCs in soil. Note that no VOCs were selected as COPCs in soil in this HHRA.

Derivation of Toxicity Criteria

Uncertainty associated with the toxicity assessment is related to the hazard assessment and dose response evaluations for the COPCs. The hazard assessment characterizes the nature and strength of causal evidence or the likelihood that a chemical that induces adverse effects in animals will do likewise in humans. A hazard assessment of carcinogenicity was evaluated as a weight of evidence determination using USEPA methods. Positive animal cancer test data suggest that humans contain tissue(s) that may manifest a carcinogenic response; however, animal data cannot necessarily be used to predict the target tissue in humans. In the hazard assessment of non-carcinogenic effects, however, positive animal data often suggest the nature of the effects (i.e., the target tissues and type of effects) to be anticipated in humans.

Uncertainty in hazard assessment arises from the nature and quality of the animal and human data. Uncertainty is reduced when:

- Similar effects are observed across species, strain, sex, and exposure route.
- The magnitude of the response is clearly dose related.
- Pharmacokinetic data indicate a similar fate in humans and animals.
- Postulated mechanisms of toxicity are similar for humans and animals.
- The COPC is structurally similar to other chemicals for which toxicity is more completely characterized.

Uncertainty in the dose response evaluation includes determining a CSF for the carcinogenic assessment and deriving an RfD for the non-carcinogenic assessment. Uncertainty is introduced from interspecies (animal-to-human) extrapolation, which, in the absence of quantitative pharmacokinetic or mechanistic data, is usually based on consideration of interspecies differences in basal metabolic rate. Uncertainty also results from intraspecies variation. Most toxicity experiments are performed on animals very similar in age and genotype, so intragroup biological variation is minimal.

The human population of concern, however, may reflect a great deal of heterogeneity, including unusual sensitivity or tolerance to the COPC. Even toxicity data from human occupational exposures reflect a bias because only those individuals sufficiently healthy to regularly attend work (the “healthy worker effect”), and those not unusually sensitive to the chemical are likely to be occupationally exposed.

Finally, uncertainty arises from the quality of the key study from which the quantitative estimate is derived and the database used. For cancer effects, the uncertainty associated with dose response factors was mitigated by assuming the 95-percent upper bound for the slope factor. Another source of uncertainty in carcinogenic assessment is the method by which data from high doses in animal studies are extrapolated to the dose range expected for environmentally exposed humans. The linearized multi-stage model, which is used in nearly all quantitative estimations of human risk based on animal data, is based on a non-threshold assumption of carcinogenesis. Evidence suggests, however, that epigenetic carcinogens, as well as many genotoxic carcinogens, have a threshold below which they are non-carcinogenic. Therefore, using the linearized multi-stage model was conservative for chemicals that exhibited a threshold for carcinogenicity.

For non-carcinogenic effects, additional uncertainty factors may have been applied to derive the RfD to mitigate poor quality of the key study or gaps in the database. Additional uncertainty for non-carcinogenic effects arose from using an effect level in the estimate of an RfD because this estimate was predicated on the assumption of a threshold less than which adverse effects were not expected. Therefore, an uncertainty factor is usually applied to estimate a no effect level.

There is additional uncertainty in estimating an RfD for chronic exposure from subchronic data. Unless empirical data indicated that effects did not worsen with increasing duration of exposure, an additional uncertainty factor was applied to the no effect level in the subchronic study. Uncertainty in deriving RfDs was mitigated by using uncertainty and modifying factors that normally range between 3 and 10. The resulting combination of uncertainty and modifying factors may have reached 1,000 or more. Deriving dermal RfDs and CSFs from oral values may also have caused uncertainty. This was particularly the case when no gastrointestinal absorption rates were available in the literature or when only qualitative statements regarding absorption were available.

Toxicity Criteria for Chromium

Toxicity criteria are available for different forms of chromium, which is considered to be more toxic in the hexavalent state. The following table compares the maximum total chromium concentrations reported for IOA samples to available USEPA RSLs.

COMPARISON OF IOA CHROMIUM RESULTS TO BASEWIDE BACKGROUND VALUES AND RSLS FOR HEXAVALENT AND TRIVALENT CHROMIUM

Maximum Site Chromium Concentration	Basewide Background Value	USEPA Residential RSL - Hexavalent Chromium	USEPA Residential RSL - Trivalent Chromium
Surface soil: 149 mg/kg	10.1 mg/kg	0.29 mg/kg	120,000 mg/kg
Subsurface soil: 11 mg/kg	10.15 mg/kg		

Risks associated with this chemical were assessed by conservatively assuming that 100 percent of the reported total chromium result is attributable to hexavalent chromium. Therefore, the risks calculated for chromium in surface and subsurface soil at the IOA are likely overestimated. However, the estimated medium-specific surface and subsurface soil HIs do not exceed an HI of 1, and ILCRs do not exceed the USEPA target cancer risk range (1×10^{-4} to 1×10^{-6}) for receptors other than the child and lifelong residents exposed to surface soil in the high concentrations area. In cases where the estimated risks do not exceed target levels, overall risk assessment conclusions are not impacted despite the likely overestimation of risks resulting from the use of the hexavalent chromium toxicity criteria. For child and lifelong residents exposed to high concentrations area surface soil, risks exceed $1x10^{-4}$ even if chromium is not assumed to be present as hexavalent chromium, as ILCRs calculated for the BAP equivalents for these receptors exceed $1x10^{-4}$. Therefore, overall risk assessment conclusions are not impacted due to uncertainty associated with toxicity criteria for chromium.

Toxicity Criteria for Aroclor-1260

Aroclor-1260 was selected as a COPC for surface soil. No non-carcinogenic toxicity criteria are available for Aroclor-1260. However, a non-carcinogenic RfD is available for Aroclor-1254, a related Aroclor mixture that was not detected in study area media. The non-carcinogenic RfD for Aroclor-1254 was used to calculate HIs for Aroclor-1260. As a result, location-by-location specific HIs for several EUs exceed 1 at several locations, and Aroclor-1260 was identified as a risk driver for these locations. Aroclor-1260 would not be a risk driver in the location-by-location evaluation if the RfD for Aroclor-1254 was not used to estimate HIs. HIs estimated for Aroclor-1260 using the RfD for Aroclor-1254 for the high-concentrations area surface soil data set or the low-concentrations area surface soil data set do not exceed 1 on a target organ-specific basis.

Uncertainty in the Risk Characterization

Uncertainty in risk characterization results primarily from assumptions made regarding additivity of effects from exposure to multiple COPCs from various exposure routes. High uncertainty exists when summing cancer risks for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Often compounds affect different organs, have different mechanisms of action, and differ in their fate in the body, so additivity may not be an appropriate assumption. However, the assumption of additivity is made to provide a conservative estimate of risk.

The risk characterization also does not consider antagonistic or synergistic effects. Little or no information is available to determine the potential for antagonism or synergism for the COPCs. Therefore, the uncertainty regarding antagonistic or synergistic effects is ambiguous because potential human health risks may either be underestimated or overestimated.

In this HHRA the risk characterization compared cancer risks to the USEPA target cancer risk range ($1x10^{-4}$ to $1x10^{-6}$). The cPAHs in high concentrations area surface soil were the primary risk drivers for child and lifelong residents with estimated ILCRs exceeding the target cancer risk range. For comparison purposes the following table screens the maximum concentrations of cPAHs detected in the various soil data sets against the MCP Method 1 Standards in addition to the USEPA RSLs for residential soil:

Chemical	Maximum Concentration (µg/kg)	MCP S-1/ GW-1[(1)] (µg/kg)	Above MCP Screening Level?	USEPA RSL – Residential Soil[(2)] (µg/kg)	Above USEPA Screening Level?
High Concentrations Area Surface Soil					
Benzo(a)anthracene	12000	7000	Yes	150	Yes
Benzo(a)pyrene	11000	2000	Yes	15	Yes
Benzo(b)fluoranthene	17000	7000	Yes	150	Yes
Benzo(k)fluoranthene	9400	70000	No	1500	Yes
Chrysene	14000	70000	No	15000	No
Dibenzo(a,h)anthracene	720	700	Yes	15	Yes
Indeno(1,2,3-cd)pyrene	8300	7000	Yes	150	Yes
BAP Equivalents	15600	2000	Yes	15	Yes
Low Concentrations Area Surface Soil					
Benzo(a)anthracene	630	7000	No	150	Yes
Benzo(a)pyrene	610	2000	No	15	Yes
Benzo(b)fluoranthene	1000	7000	No	150	Yes
Benzo(k)fluoranthene	250	70000	No	1500	No
Chrysene	760	70000	No	15000	No
Dibenzo(a,h)anthracene	95	700	No	15	Yes
Indeno(1,2,3-cd)pyrene	490	7000	No	150	Yes
BAP Equivalents	893	2000	No	15	Yes
Entire Site Subsurface Soil					
Benzo(a)anthracene	520	7000	No	150	Yes
Benzo(a)pyrene	380	2000	No	15	Yes
Benzo(b)fluoranthene	650	7000	No	150	Yes
Benzo(k)fluoranthene	250	70000	No	1500	No
Chrysene	550	70000	No	15000	No
Dibenzo(a,h)anthracene	64	700	No	15	Yes
Indeno(1,2,3-cd)pyrene	200	7000	No	150	Yes
BAP Equivalents	584	2000	No	15	Yes

1 - MCP Method 1: Soil Category S-1 Standards. S-1 (Soil) & GW-1 (Groundwater). 310 CMR 40.0000, 12/14/2007.
2 - USEPA RSL for Residential Soil, November 2012 (USEPA, 2012b).

As summarized above, the maximum concentrations of several individual cPAHs and the BAP equivalents exceed the associated MCP criteria in the high concentrations area surface soil data set. No cPAHs exceed the associated MCP criteria in the low concentrations area surface soil or entire site

subsurface soil data sets. The maximum concentrations of most cPAHs exceed the USEPA RSLs for residential soil in the three data sets evaluated. Maximum concentrations detected in the high concentrations area surface soil data set are generally one order of magnitude greater than maximum concentrations detected in the low concentrations area surface soil and entire site subsurface soil data sets.

Additionally, for completeness, positive detections in surface soil and subsurface soil were screened against MCP criteria (S-1 & GW-1 Standards) on a location-by-location basis. The results of the screening are presented in Appendix E, Tables E.2 and E.3 for surface and subsurface soil, respectively. No detected concentrations in subsurface soil exceeded MCP criteria. The following table summarizes exceedances noted in surface soil.

Surface Soil Results Exceeding MCP S-1 & GW-1 Standards

Exposure Unit	Parameter(s)
EU 10	Aroclor-1260/Total Aroclor
EU 15	Aroclor-1260/Total Aroclor
EU 21	2-Methylnaphthalene
EU 28	cPAHs, Phenanthrene, Heptachlor epoxide
EU 37	Cadmium
EU 38	cPAHs, 2-Methylnaphthalene
EU 39	2-Methylnaphthalene, Chromium, Lead
EU 40	cPAHs
EU 45	Lead
EU 49	Arsenic

The results of screening the surface soil data against MCP S-1 & GW-1 Standards summarized below are similar to the results presented in Section 4.4:

- PCBs in EUs 10 and 15 were identified as risk drivers in the location-by-location evaluation in Section 4.4
- cPAHs, heptachlor epoxide, and chromium were previously identified as risk drivers for the high concentrations area, which includes EUs 28, 38, 39, and 40 in Section 4.4
- Lead and arsenic were also identified as risk drivers for EUs 39 and 49, respectively in Section 4.4.

Although several parameters that were not identified as risk drivers in Section 4.4 exceeded the MCP criteria in EU 28 (i.e., phenanthrene), EU 38 (i.e., 2-methylnaphthalene), and EU 39 (i.e., 2-methylnaphthalene), other risk drivers were previously identified for these EUs. Additionally, detected concentrations of phenanthrene and 2-methylnaphthalene in these EUs do not exceed the USEPA RSL for residential soil based on an HQ of 0.1.

No risk drivers were identified in EUs 21, 37, and 45 based on the risk evaluations presented in Section 4.4. Although concentrations of 2-methylnaphthalene in EU 21, cadmium in EU 37, and lead in EU 45 exceeded MCP S-1 & GW-1 criteria, these concentrations do not exceed RSLs for residential soil (based on an HQ of 0.1, as applicable).

4.6 SUMMARY AND CONCLUSIONS

Two potential receptor groups were evaluated: future commercial receptors (based on zoning and allowable future land use), and future residents (based on zoning and allowable future land use and to be protective of all possible future land use scenarios). Surface soil was evaluated in two data groupings: 1) high concentrations area EUs; and 2) low concentrations area EUs (primarily based on cPAH results). Subsurface soil results were evaluated as a single data group. Additionally, a location-by-location evaluation was conducted for residents for both surface and subsurface soil. Only the RME exposure scenario was evaluated.

Non-Carcinogenic Risks

HIs were less than or equal to 1 when calculated on a target organ-specific basis for all commercial and residential receptors evaluated for exposure to high concentrations area surface soil, low concentrations area surface soil, and subsurface soil.

Non-cancer hazards estimated as part of the location-by-location evaluation for residents were less than 1 on a target organ-specific basis for subsurface soil. In surface soil, HIs for EUs 8, 10, 15, 17, and 49 exceeded 1 on a target organ basis. HIs estimated for EUs 8, 10, 15, and 17 exceeded 1 on a target organ basis due to Aroclor-1260 (using non-cancer toxicity criteria for Aroclor-1254); therefore, Aroclor-1260 was identified as a primary risk driver and COC for these four EUs. One or more detected concentrations of Aroclor-1260 exceed 1 mg/kg in EUs 8, 10, 15, and 17. For EU 49, the target organ-specific HIs for CVS and skin exceed 1 due to arsenic in the single surface soil sample available; therefore, arsenic is identified as a primary risk driver and COC for EU 49. The concentration of arsenic detected in EU 49 is approximately three times greater than the second-greatest arsenic detection in the IOA.

Carcinogenic Risks

Cancer risk estimates for all receptors exposed to COPCs in surface soil in the low concentrations area and subsurface soil are within USEPA's target cancer risk range of $1x10^{-4}$ to $1x10^{-6}$. The cancer risk estimates for child, adult, and lifelong commercial receptors and adult residents exposed to COPCs in surface soil in the high concentrations area are also within USEPA's target cancer risk range.

Cancer risk estimates for child and lifelong residents exposed to COPCs in surface soil in the high concentrations area exceed USEPA's target cancer risk range primarily due to cPAHs and chromium (evaluated using hexavalent chromium toxicity criteria). However, risks associated with chromium are likely overestimated because hexavalent chromium is unlikely to be present in study area soils at significant concentrations (relative to the total chromium concentrations). Heptachlor epoxide and arsenic were also risk drivers for child residents, and heptachlor epoxide, 2,3,7,8-TCDD equivalents, and arsenic were also risk drivers for lifelong residents.

In the location-by-location evaluation for residents, cancer risk estimates for surface soil for sample locations in EUs 28, 29, 38, 39, and 40 exceed $1x10^{-4}$. The exceedances are primarily due to cPAHs, and these EUs were therefore grouped together and defined as the "high concentrations" area referenced in the preceding narrative. At EU 28, heptachlor epoxide, arsenic and chromium are also risk contributors, as the ILCRs for these chemicals exceed $1x10^{-6}$. Arsenic and chromium are also risk drivers at EUs 29, 38, 39, and 40. Cancer risk estimates calculated for surface or subsurface soils at other IOA study area locations did not exceed $1x10^{-4}$.

Exposure to Lead

Lead was selected as a COPC in surface soil. However, EPCs for lead (i.e., the arithmetic mean concentrations) were less than the residential soil screening level of 400 mg/kg for surface soil in both the high concentrations and low concentrations areas. Therefore, lead was not further evaluated for these data sets.

Lead was also evaluated in the location-by-location assessment. Four of five lead concentrations detected in EU 39 exceeded the residential soil screening level of 400 mg/kg. Lead concentrations did not exceed the screening level in any other samples or EUs. The arithmetic mean lead concentration for EU 39 was 605 mg/kg. Therefore, lead risks were assessed using the IEUBK (for residents) and TRW (for non-residents) models.

The IEUBK model (USEPA, 1994; 2010c) evaluated a young child resident (0 to 6 years of age) as the receptor of concern. The evaluation of a mean lead concentration (605 mg/kg) results in approximately 14.7 percent of future on-site child residents having a blood-lead level greater than 10 µg/dL and a geometric mean blood-lead level of 6.1 µg/dL. These results are at variance with the USEPA goal (as described in the 1994 OSWER Directive) of no more than 5 percent of children exceeding a 10 µg/dL blood-lead level. Therefore, lead is identified as a primary risk driver for EU 39. However, note that if the maximum lead concentration of 1280 mg/kg were excluded from the evaluation, the mean lead concentration in EU 39 would be less than 400 mg/kg, and therefore no adverse effects would be anticipated for residential exposure to lead.

Risks to adult commercial receptors exposed to lead in soil were evaluated using a slope factor approach developed by the USEPA TRW for lead (USEPA, 2003a, 2009b). The lead mean concentration of 605 mg/kg results in approximately 0.01 percent of receptors of a having a blood-lead level greater than 10 µg/dL and a geometric mean blood-lead level of 1.3 µg/dL. The results for adult commercial receptor is not at variance with the USEPA goal of no more than 5 percent of children (fetuses of exposed women) exceeding a 10 µg/dL blood lead level. These results indicate that adverse effects are not likely for children or fetuses of future pregnant commercial receptors exposed to lead in EU 39.

Human Health Risk Assessment Chemicals of Concern

The chemicals of concern for the two surface soil data groupings and subsurface soil data group evaluation as well as the location-by-location evaluation are presented below. Based on the non-cancer and cancer risk evaluations, the following contaminants with non-cancer HQs greater than 0.1 that contribute to a target organ-specific HI exceeding 1 or with cancer risks greater than $1x10^{-6}$ in a scenario with total cancer risks greater than $1x10^{-4}$ were identified as COCs:

Data Groupings Evaluation

Medium/Data Grouping	Receptor	COCs
Surface soil – high concentrations area	Child resident Lifelong resident	BAP equivalents[(1)(2)], heptachlor epoxide[(1)(2)], 2,3,7,8-TCDD equivalents[(2)], arsenic[(1)(2)], chromium[(1)(2)]
Surface soil – low concentrations area	--	--
Subsurface soil	--	--

[(1)] – Selected as a COC based on child resident cancer risk.
[(2)] – Selected as a COC based on lifelong resident cancer risk.

Location-by-Location Evaluation

Medium/Location	Receptor	COCs
Surface soil – EU 8	Child resident	Aroclor-1260[(1)]
Surface soil – EU 10	Child resident	Aroclor-1260[(1)]
Surface soil – EU 15	Child resident	Aroclor-1260[(1)]
Surface soil – EU 17	Child resident	Aroclor-1260[(1)]
Surface soil – EU 28	Lifelong resident	cPAHs[(2)], heptachlor epoxide[(2)], arsenic[(2)], chromium[(2)]
Surface soil – EU 29	Lifelong resident	cPAHs[(2)], arsenic[(2)], chromium[(2)]
Surface soil – EU 38	Lifelong resident	cPAHs[(2)], arsenic[(2)], chromium[(2)]
Surface soil – EU 39	Child resident Lifelong resident	cPAHs[(2)], arsenic[(2)], chromium[(2)], lead[(1)]
Surface soil – EU 40	Lifelong resident	cPAHs[(2)], arsenic[(2)], chromium[(2)]
Surface soil – EU 49	Child resident	Arsenic[(1)]

(1) – Selected as a COC based on child resident non-cancer risk.
(2) – Selected as a COC based on lifelong resident cancer risk.

However, chromium risks are likely overestimated because it was assumed that chromium was present in the hexavalent state (i.e., toxicity criteria for hexavalent chromium were conservatively used in the assessment). Aroclor-1260 was selected as a COC in the location-by-location evaluation for the child resident using non-cancer toxicity criteria for Aroclor-1254. Additionally, naphthalene in surface soil (in several EUs) and subsurface soil (in RIA 33) and lead in surface soil (in EU 39) were identified as COCs based on the migration to groundwater analysis.

5.0 DATA COMPARISON TO SITE CLEANUP GOALS

Site-specific PRGs were calculated for the COCs identified in the streamlined HHRA discussed in Section 4. The PRGs presented below are for the COCs that contribute significantly to the cancer risk (using a 1 X 10^{-5} target cancer risk level) and/or HI (using a value of 1) for the hypothetical resident exposed to site surface soil. The HHRA identified naphthalene in surface and subsurface soil as a COC based on the migration to groundwater analysis. However, since no concentrations of naphthalene in surface or subsurface soil exceeded the RSL, a PRG for naphthalene was not developed. The surface soil PRGs and background values, where applicable, are summarized in the table below along with the selected cleanup goal for each COC. Where the background value is greater than the PRG, it is used as the cleanup goal. A comparison of the IOA surface soil concentrations in EUs where risks were identified to the cleanup goals is presented below. The PRG calculations are included in Appendix F.

Contaminant of Concern	Units	Hypothetical Resident PRG	Background Value	Cleanup Goal
Benzo(a)pyrene Equivalents	µg/kg	150	2130	2130
Benzo(a)anthracene	µg/kg	1500	810	1500
Benzo(a)pyrene	µg/kg	150	1828.8	1828.8
Benzo(b)fluoranthene	µg/kg	1500	770	1500
Benzo(k)fluoranthene	µg/kg	15000	2700	15000
Dibenzo(a,h)anthracene	µg/kg	150	96	150
Indeno(1,2,3-cd)pyrene	µg/kg	1500	175	1500
Aroclor-1260	µg/kg	1100*	NA	1100
Heptachlor Epoxide	µg/kg	530	NA	530
2,3,7,8-TCDD Equivalents	µg/kg	0.045	NA	0.045
Arsenic	mg/kg	3.9	5.31	5.31
Chromium	mg/kg	3.0	10.1	10.1
Lead	mg/kg	400	301.7	400

Notes: NA – not applicable
*Calculated using the non-cancer toxicity criteria for Aroclor-1254

5.1 SURFACE SOIL CONCENTRATION COMPARISON

Table 5-1 presents the concentrations of the Site COCs in EUs where risks were identified in surface soil (0 to 3 ft bgs). The data for these EUs are compared to the cleanup goals in the table above, e.g., either the site-specific PRGs for the hypothetical resident or surface soil background values (whichever is greater). Exceedances of the cleanup goals are highlighted in black in Table 5-1. The comparison for each analyte group is discussed below. As discussed in Section 4.4 and summarized in the location-by-location risk estimates in Appendix D-4, the analytical results in all other EUs are less than the USEPA cancer and non-cancer risk targets.

PAHs

Concentrations of benzo(k)fluoranthene were all below the selected cleanup goal. Benzo(a)anthracene benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene concentrations exceeded the cleanup goals in one or more samples from the EUs associated with the high concentration areas (i.e. EUs 28, 29, 38, 39, and 40). Figure 5-1 presents a tag map showing the locations with concentrations of the PAH COCs that exceed the cleanup goals.

Pesticides/PCBs

Concentrations of heptachlor epoxide in surface soil were all below the cleanup goal. Aroclor-1260 concentrations exceeded the cleanup goal in six samples from four EUs (EUs 8, 10, 15, and 17). Figure 5-1 presents a tag map showing locations with concentrations of Aroclor-1260 that exceed the cleanup goal.

Metals

Arsenic concentrations exceeded the cleanup goal at five sample locations in EUs 29, 38, 39 and 49. The maximum arsenic concentration (36 mg/kg) was detected in EU49, located in the southern portion of the Site; the arsenic concentration exceedances in the high concentration area EUs ranged from 5.7 mg/kg [avg.] to 10.4 mg/kg and do not seem indicative of an arsenic release. Chromium concentrations exceeded the cleanup goal at seven sample locations in all five high concentrations area EUs. The maximum chromium concentration (149 mg/kg) was detected in EU39, located in the south-central portion of the Site; the other chromium concentrations ranged from 10.9 mg/kg to 18.7 mg/kg. Lead concentrations exceeded the cleanup goal at two sample locations, both in EU39, with concentrations of 503 mg/kg [avg] and 1280 mg/kg, respectively. The sample locations with concentrations of the three metals COCs that exceed the cleanup goals are presented on Figure 5-1.

Dioxins

There were no exceedances of the cleanup goal for 2,3,7,8-TCDD (TEQ).

5.2 LOCATION BY LOCATION SURFACE SOIL CONCENTRATIONS COMPARED TO PRGS

As discussed previously in Section 4, in the location by location analysis a number of compounds were retained as COCs based on the HI or carcinogenic risk. Aroclor-1260 was retained as a COC in EUs 8, 10, 15, and 17 and arsenic was retained as a COC in EU 49 based on the HI estimates. Based on the carcinogenic risks, cPAHs were retained as COCs in EUs 28, 29, 38, 39, and 40. In addition heptachlor epoxide, arsenic, and chromium were retained as COCs in EU 28 and arsenic and chromium were

retained as COCs in EUs 29, 38, 39, and 40. Using the IEUBK model, lead was retained as a COC in EU39. Concentrations of benzo(k)fluoranthene and heptachlor epoxide were all below the cleanup goals. The remaining COCs retained in the location by location analysis exceeded the respective cleanup goals in one or more samples, as described in Section 5.1.

6.0 SUMMARY AND CONCLUSIONS

The IOA is an approximately 20-acre site in the center of the former Base where predominantly industrial-type operations occurred. There are 13 inactive buildings and 16 environmental sites located within the IOA. Historical data from investigations conducted at those sites were supplemented by data collected during a field investigation conducted in 2011 to compile a complete data set for the IOA. The complete IOA data set was used to evaluate potential low-level dispersed contamination due to past industrial operations in the IOA, and to assess suspected subsurface contamination remaining from the Building 117 floor drain and potential UST releases (RIA 33 and RIA 82, respectively).

The surface and subsurface soil analytical results for the samples included in the IOA data set were compared to RSLs and Base background values (where appropriate). A streamlined HHRA was performed to further characterize the potential threat to human health from exposure to Site soils. The HHRA identified COCs based on exposures to hypothetical future residents, which was used as a scenario protective of all possible future land uses at the IOA. Site-specific risk-based PRGs were calculated for the COCs based on exposures of hypothetical future residents to surface soil. Either the PRGs or surface soil background values (whichever is greater) were selected as the cleanup goals for each COC. The concentrations of the COCs in the IOA data set for those EUs where risks were identified were compared to the applicable cleanup goals. Exceedances of the cleanup goals in an EU are summarized in the table below.

EXPOSURE UNIT	COC EXCEEDANCES
EU 8, 10, 15, and 17 (Low Concentration Area)	Aroclor-1260
EU 28 (High Concentration Area)	Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and chromium
EU 29 (High Concentration Area)	Benzo(a)anthracene, benzo(b)fluoranthene, arsenic, and chromium
EU 38 (High Concentration Area)	Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, arsenic, and chromium
EU 39 (High Concentration Area)	Benzo(a)anthracene, benzo(b)fluoranthene, arsenic, chromium, and lead
EU 40 (High Concentration Area)	Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and chromium
EU49 (Low Concentration Area)	Arsenic

Based on this evaluation of the human health risk, PAH contamination exists in the five EUs designated as the high concentrations area and shown on Figure 5-1. The historical and 2011 surface soil PAH

concentrations for samples associated with the low concentrations area are comparable; the historical sample PAH concentrations have previously led to no further action (NFA) for the associated closed sites.

PCB contamination (Aroclor-1260, specifically) exists in the northeastern portion of the Site in four EUs (EUs 8, 10, 15, 17). Four of the six samples with exceedances of the Aroclor 1260 cleanup goal are associated with historical samples (EU08 and EU15), surrounding the RCRA 90-day hazardous waste accumulation area (AOC 83). While these data were used in the AOC 83 streamlined HHRA, the Aroclor-1260 data were not evaluated using the non-cancer toxicity criteria for Aroclor-1254 (EA Engineering, 2004). There is no distinct dispersal pattern to the exceedances of the Aroclor-1260 cleanup goal, but the remaining two exceedances are north and east of Building No.2, the Supply Warehouse.

There was no distinct dispersal pattern to the exceedances of the metals cleanup goals (arsenic, chromium, and to a lesser extent lead) as shown on Figure 5-1. As noted in the HHRA, chromium was conservatively evaluated as hexavalent chromium and all of the chromium concentrations are greater than the hexavalent chromium-based PRG. Chromium would not be a COC if it was evaluated as trivalent chromium. Both of the lead cleanup goal exceedances and three of the five arsenic exceedances are associated with historical sample locations.

There was no risk associated with the site-wide subsurface soil sample concentrations at either RIA 33 or RIA 82.

The results of this investigation indicate that the surface soil was likely impacted by industrial operations, mainly in the center portion of the Site (EU28, EU29, EU38, EU39, and EU40) where concentrations of PAHs, arsenic, chromium, and lead exceed the cleanup goals (high concentration area) and the northeastern portion of the Site (EU8, EU10, EU15, and EU17) where concentrations of Aroclor-1260 exceed the cleanup goal. The Navy recommends that a removal action be performed to address the exceedances discussed above and that no further action is necessary for the other EUs where there are no exceedances of the established cleanup goals. The Navy anticipates that a removal action would include excavation of surface soils as follows:

- Excavation of the top 2 feet of soil in a 10 foot by 10 foot area surrounding the sample locations with exceedances in EU28, EU29, EU38, EU39, and EU40 (high concentration area), excluding building footprints and roadways. Confirmation samples would be collected for PAH and metals analysis to determine whether additional excavation would be required at these locations. In addition, the excavation would exclude previously excavated locations and closed sites, such as the AOC 15 water tower removal action in EU 39. The RIAs and AOCs that have been closed out are discussed in Section 1.

- Excavation of the top 2 feet of soil in a 10 foot by 10 foot area surrounding the sample locations with exceedances in EU8, EU10, EU15, EU17 and EU49. Confirmation samples would be collected for PCB analysis at EU8, EU10, EU15, and EU17 and metals analysis at EU49 to determine whether additional excavation would be required at these locations.
- Additionally, surface soil sample SS-EU03 targeted an area beneath a pole mounted transformer within EU 03. While there were no exceedances of the PCB cleanup goal associated with this sample, the Navy will assess the transformer as part of the removal action.

A BRAC Cleanup Team meeting will be scheduled to discuss recommendations for the removal action and any other actions necessary to bring the Site to closure and subsequent transfer.

TABLES

TABLE 2-1
SURFACE SOIL (0 TO 3 FEET) SAMPLE SUMMARY
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Exposure Unit	PAHs	PCBs	Metals	Dioxins
EU01	EU01			NA
EU02	EU02			NA
EU03	EU03			NA
EU04	EU04			NA
EU05	B14-SB-09	B14-SB-09	B14-SB-09, B116-MW-01, B116-MW-04	NA
EU06	EU06			NA
EU07	EU07	SB07-339	EU07	EU07
EU08	SB07-309, SB07-310, SB07-330, SB07-331, SB07-340	SB07-308, SB07-310	SB07-307, SB07-308, SB07-309, SB07-310	NA
EU09	EU09			
EU10	B116-MW03, B116-MW05, B14-SB08	EU10	B116-MW03, B116-MW05, B14-SB08	NA
EU11	SB11-201			NA
EU12	EU12			NA
EU13	EU13			
EU14	SB07-312	SB07-312	EU14	NA
EU15	SB07-305, SB07-311	SB07-326, SB07-327, SB07-328, SB07-329, SB07-336, SB07-337, SB07-338	SB07-305, SB07-306	EU15
EU16	EU16			NA
EU17	EU17			NA
EU18	MW11-131	MW11-131, SB11-205	MW11-131	NA
EU19	EU19			NA
EU20	SB09-007	NA[1]	SB09-007	NA
EU21	SB09-008	EU21	SB09-008	NA
EU22	SB09-009	EU22	SB09-009	NA
EU23	EU23			NA
EU24	SB06-343			
EU25	NA[2]	NA[2]	NA[2]	NA[2]
EU26	SB06-010, B8-MW03, B8-MW04	SB06-010, SB06-011	SB06-010, SB06-011	SB06-010, SB06-304
EU27	B8-MW02, B8-MW05,B8-MW06	EU27	EU27	EU27
EU28	SB06-002 S1SWE, S1SWN, S1SWW, S2SWE, S2SWN, S2SWW, AOC13-SW01, AOC13-SW02, AOC13-SW03, AOC13-SW04, SB06-00N	SB06-002, SB06-001	SB06-002, SB06-001	EU28
EU29	EU29			NA
EU30	EU30			NA
EU31	EU31			NA
EU32	EU32			NA
EU33	EU33			NA
EU34	EU34			NA
EU35	EU35			NA
EU36	EU36			
EU37	SB06-008	SB06-008, SB06-009, SB06-351, MW06-013	SB06-008, SB06-009, SB06-351, MW06-013	SB06-351, EU27
EU38	SB06-006, SB06-007	SB06-006, SB06-007, SB06-012	SB06-006, SB06-007, SB06-012	EU38

TABLE 2-1
SURFACE SOIL (0 TO 3 FEET) SAMPLE SUMMARY
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Exposure Unit	PAHs	PCBs	Metals	Dioxins
EU39	SB06-005, SB06-004	SB06-005, SB06-004	SB06-005, SB06-004, SS06-020	EU39
EU40	EU40			NA
EU41	EU41			NA
EU42	EU42			NA
EU43	EU43			
EU44	EU44			NA
EU45	EU45			NA
EU46	EU46			
EU47	EU47			NA
EU48	EU48			NA
EU49	EU49			NA

Notes:

1) Sample collected but not analyzed by laboratory

2) Sample not collected from EU25 - within the footprint of Building 117

All EUXX samples were collected in 2011 from 0 to 2 feet bgs. All remaining samples were collected during historical invesitgations.

NA = Sample not collected for the analytical compound

TABLE 2-2
RIA 33 PETROFLAG TPH RESULTS AND LABORATORY CONFIRMATORY SAMPLE LOCATIONS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Soil Boring Location	3-5 ft bgs		5-7 ft bgs		7-9 ft bgs		9-11 ft bgs		Sample Interval Collected for Laboratory Analysis
	PetroFLAG TPH Field Screening (ppm)	PID Headspace Field Screening (ppm)	PetroFLAG TPH Field Screening (ppm)	PID Headspace Field Screening (ppm)	PetroFLAG TPH Field Screening (ppm)	PID Headspace Field Screening (ppm)	PetroFLAG TPH Field Screening (ppm)	PID Headspace Field Screening (ppm)	
IOA-RIA33-SB01 (step out)	266	14.7	54	0	20 J	0	NC	NC	
IOA-RIA33-SB02	356	0	**403**	0.1	37 J	0	NC	NC	IOA-SO-RIA33-SB02-0507
IOA-RIA33-SB03 (step out)	279	0.1	228	0	18 J	0	NC	NC	
IOA-RIA33-SB04 (step out)	**216**	0	24 J	0	1 J	0	NC	NC	
IOA-RIA33-SB05	86	0	72	<1	0	0	NC	NC	IOA-SO-RIA33-SB04-0305
IOA-RIA33-SB06 (step out)	81	0	56	0	84	<1	NC	NC	
IOA-RIA33-SB07(step out)	131	<1	55	0	28 J	0	NC	NC	
IOA-RIA33-SB08	**268**	<1	89	<1	48	<1	NC	NC	IOA-SO-RIA33-SB08-0305
IOA-RIA33-SB09 (step out)	101	0.1	78	<1	61	0	NC	NC	
IOA-RIA33-SB10 (step out)	**221**	0.8	21 J	1.1	183	0.9	63	0.1	
IOA-RIA33-SB11	91	0	140	0	149	0	NC	NC	IOA-SO-RIA33-SB10-0305
IOA-RIA33-SB12 (step out)	187	0	98	<1	99	0	NC	NC	
IOA-RIA33-SB13 (step out)	292	0	125	0	21 J	0	NC	NC	
IOA-RIA33-SB14	144	0.1	**1272**	0	38 J	0	NC	NC	IOA-SO-RIA33-SB14-0507
IOA-RIA33-SB15 (step out)	296	0	87	0	57	0	NC	NC	

Notes:

TPH = Total Petroleum Hydrocarbon

ft = feet

bgs = below ground surface

ppm = parts per million

NC = Not collected

Bold = Confirmation sample collected at this location for laboratory analysis of PAHs and metals.

Samples collected for laboratory analysis were analyzed for VOCs, PAHs, and metals.

TABLE 2-3
RIA 82 PETROFLAG TPH RESULTS AND LABORATORY CONFIRMATORY SAMPLE LOCATIONS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Soil Boring Location	6-8 ft bgs PetroFLAG TPH Field Screening (ppm)	8-10 ft bgs PetroFLAG TPH Field Screening (ppm)	Notes
IOA-RIA82-SB06-011	NC	73	Sample collected for comparison only, no confirmatory samples collected for laboratory analysis.
IOA-RIA82-SB01A	**47**	73	
IOA-RIA82-SB01B	30 J	42	increasing to the east, no confirmatory samples collected for laboratory analysis.
IOA-RIA82-SB02A	**18 J**	29 J	
IOA-RIA82-SB03A	**23 J**	31 J	
IOA-RIA82-SB04A	**30 J**	49	

Notes:

TPH = Total Petroleum Hydrocarbon

ft= feet

ppm = parts per million

bgs = below ground surface

NC = Not collected

Bold = Confirmation sample collected at this location for laboratory analysis of PAHs and metals.

Samples collected above the water table (approximately 8 feet bgs) for laboartory analysis, the 8 to 10 foot interval collected for comparison only.

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			S2SWE	S2SWE-D	S2SWE-AVG	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-D	NAS-AOC13-SW01-AVG	NAS-AOC13-SW04	B116-OSB1AA	B116-OSB1AA-D	B116-OSB1AA-AVG	B116-OSB4AA	B116-OSB4AA-D	B116-OSB4AA-AVG	B14SB09AA
LOCATION ID			AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-04	B116-MW-04	B116-MW-04	B14-SB-09
SAMPLE DATE			03/11/04	03/11/04	03/11/04	03/11/04	09/29/04	09/29/04	09/29/04	09/30/04	03/12/97	03/12/97	03/12/97	03/13/97	03/13/97	03/13/97	06/14/99
DEPTH			0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 2 FT
EXPOSURE UNIT			EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU05	EU05	EU05	EU05	EU05	EU05	EU05
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil															
SEMIVOLATILES (UG/KG)																	
BAP EQUIVALENT-HALFND	15	2130	75.2 J	206 J	141 J	46.1 J	40.7 J	144 J	92.4 J	413	360 U	360 U	360 U	360 U	360 U	360 U	190 U
BAP EQUIVALENT-POS	15	2130	75.2 J	206 J	141 J	46.1 J	28.7 J	144 J	86.4 J	413	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	150	810	54	170	112	25	24	110	67	300	360 U	360 U	360 U	360 U	360 U	360 U	190 U
BENZO(A)PYRENE	15	1828.78	50	140	95	29	21 J	93	57 J	270	360 U	360 U	360 U	360 U	360 U	360 U	190 U
BENZO(B)FLUORANTHENE	150	770	64	170	117	46	36	140	88	370	360 U	360 U	360 U	360 U	360 U	360 U	190 U
BENZO(K)FLUORANTHENE	1500	2700	25	64	44.5	17 J	12 J	46	29 J	130	360 U	360 U	360 U	360 U	360 U	360 U	190 U
DIBENZO(A,H)ANTHRACENE	15	96	9.2 J	21 J	15.1 J	7 J	24 U	17 J	14.5 J	52	360 U	360 U	360 U	360 U	360 U	360 U	190 U
INDENO(1,2,3-CD)PYRENE	150	175	39	98	68.5	28	16 J	85	50.5 J	220	360 U	360 U	360 U	360 U	360 U	360 U	190 U
PESTICIDES/PCBS (UG/KG)																	
AROCLOR-1260	220		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18 U
HEPTACHLOR EPOXIDE	53		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL AROCLOR	220		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18 U
METALS (MG/KG)																	
ALUMINUM	7700	10499.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7890
ARSENIC	0.39	5.31	NA	NA	NA	NA	NA	NA	NA	NA	2	1.6	1.8	0.98	1.6	1.29	2
CALCIUM		6360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1620 J
CHROMIUM	0.29	10.1	NA	NA	NA	NA	NA	NA	NA	NA	7.8	5.1	6.45	7.2	8.7	7.95	8.5
COBALT	2.3	3.98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.4 U
IRON	5500	11300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9740

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
PAGE 2 OF 14

SAMPLE ID			S2SWE	S2SWE-D	S2SWE-AVG	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-D	NAS-AOC13-SW01-AVG	NAS-AOC13-SW04	B116-OSB1AA	B116-OSB1AA-D	B116-OSB1AA-AVG	B116-OSB4AA	B116-OSB4AA-D	B116-OSB4AA-AVG	B14SB09AA
LOCATION ID			AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-04	B116-MW-04	B116-MW-04	B14-SB-09
SAMPLE DATE			03/11/04	03/11/04	03/11/04	03/11/04	09/29/04	09/29/04	09/29/04	09/30/04	03/12/97	03/12/97	03/12/97	03/13/97	03/13/97	03/13/97	06/14/99
DEPTH			0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 3 FT	1 - 2 FT
EXPOSURE UNIT			EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU05	EU05	EU05	EU05	EU05	EU05	EU05
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil															
LEAD	400	301.7	NA	NA	NA	NA	NA	NA	NA	NA	7.3	7.7	7.5	4.6	5.2	4.9	12
MAGNESIUM		1963.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1100
MANGANESE	180	313.83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	113
THALLIUM	0.078	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5 U
VANADIUM	39	89.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.2

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			B8-8SB2AA	B8-8SB4AA	IOA-SS-EU01-0002	IOA-SS-EU01-0002-D	IOA-SS-EU01-0002-AVG	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	IOA-SS-EU06-0002	IOA-SS-EU07-0002	IOA-SS-EU09-0002	IOA-SS-EU10-0002	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	IOA-SS-EU16-0002
LOCATION ID			B8-MW-02	B8-MW-04	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	IOA-SS-EU06	IOA-SS-EU07	IOA-SS-EU09	IOA-SS-EU10	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	IOA-SS-EU16
SAMPLE DATE			07/30/96	08/02/96	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/10/11	08/11/11	08/09/11	08/09/11	08/10/11
DEPTH			1 - 3 FT	1 - 2.2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT			EU26	EU26	EU01	EU01	EU01	EU02	EU03	EU04	EU06	EU07	EU09	EU10	EU12	EU13	EU14	EU16
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil																
SEMIVOLATILES (UG/KG)																		
BAP EQUIVALENT-HALFND	15	2130	268 J	246 J	445 J	301 J	373 J	94 UJ	164 J	227 J	501 J	161 J	346 J	NA	185 J	257 J	NA	495 J
BAP EQUIVALENT-POS	15	2130	43.8 J	54 J	445 J	301 J	373 J	NA	5.3 J	122 J	501 J	4.1 J	346 J	NA	86 J	257 J	NA	385 J
BENZO(A)ANTHRACENE	150	810	370 U	39 J	340 J	240 J	290 J	94 UJ	53 J	110 J	380 J	41 J	270 J	NA	99 J	200 J	NA	410 J
BENZO(A)PYRENE	15	1828.78	370 U	46 J	310 J	210 J	260 J	94 UJ	97 UJ	97 J	360 J	94 UJ	240 J	NA	66 J	170 J	NA	300 J
BENZO(B)FLUORANTHENE	150	770	370 U	36 J	400 J	280 J	340 J	94 UJ	97 UJ	130 J	430 J	94 UJ	340 J	NA	100 J	240 J	NA	420 J
BENZO(K)FLUORANTHENE	1500	2700	370 U	45 J	180 J	110 J	145 J	94 UJ	97 UJ	100 J	130 J	94 UJ	110 J	NA	53 UJ	110 J	NA	190 J
DIBENZO(A,H)ANTHRACENE	15	96	36 J	350 U	45 J	29 J	37 J	190 UJ	190 UJ	190 UJ	47 J	190 UJ	35 J	NA	180 UJ	32 J	NA	200 UJ
INDENO(1,2,3-CD)PYRENE	150	175	78 J	350 U	140 J	85 J	112 J	190 UJ	190 UJ	190 UJ	110 J	190 UJ	87 J	NA	180 UJ	100 J	NA	200 UJ
PESTICIDES/PCBS (UG/KG)																		
AROCLOR-1260	220		NA	NA	27 J	7 J	17 J	7.3 U	9.5 J	7.3 J	150	NA	470	12000	7.2 U	18 J	NA	300
HEPTACHLOR EPOXIDE	53		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL AROCLOR	220		NA	NA	27 J	7 J	17 J	7.3 U	9.5 J	7.3 J	150	NA	470	12000	7.2 U	18 J	NA	300
METALS (MG/KG)																		
ALUMINUM	7700	10499.1	NA	NA	4400	4800	4600	5400	6600	4400	5500	7400	5600	NA	7600	6600	4900	10000
ARSENIC	0.39	5.31	NA	NA	1.5	1.7	1.6	1	1.1	1.7	0.89	2.4	1.4	NA	1.2	1.3	1.9	1.3
CALCIUM		6360	NA	NA	1500 J	1500 J	1500 J	1100 J	940 J	1000 J	1600 J	1100 J	1100 J	NA	1400	810 J	1100 J	810 J
CHROMIUM	0.29	10.1	NA	NA	5.5	5.7	5.6	5.9	15	7.4	6.9	9.5	8.1	NA	9.2	8.6	6.3	13
COBALT	2.3	3.98	NA	NA	3.2	3.1	3.15	2.8	3.5	2.9	2.7	5.5	2.8	NA	3.9	1.4	2.5	2.8
IRON	5500	11300	NA	NA	9800	11000	10400	9600	12000	11000	11000	17000	11000	NA	13000	6100	11000	9900

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			B8-8SB2AA	B8-8SB4AA	IOA-SS-EU01-0002	IOA-SS-EU01-0002-D	IOA-SS-EU01-0002-AVG	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	IOA-SS-EU06-0002	IOA-SS-EU07-0002	IOA-SS-EU09-0002	IOA-SS-EU10-0002	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	IOA-SS-EU16-0002
LOCATION ID			B8-MW-02	B8-MW-04	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	IOA-SS-EU06	IOA-SS-EU07	IOA-SS-EU09	IOA-SS-EU10	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	IOA-SS-EU16
SAMPLE DATE			07/30/96	08/02/96	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/10/11	08/11/11	08/09/11	08/09/11	08/10/11
DEPTH			1 - 3 FT	1 - 2.2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT			EU26	EU26	EU01	EU01	EU01	EU02	EU03	EU04	EU06	EU07	EU09	EU10	EU12	EU13	EU14	EU16
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil																
LEAD	400	301.7	NA	NA	16 J	14 J	15 J	6 J	9 J	5.3 J	16 J	11 J	36 J	NA	11	27 J	13 J	56 J
MAGNESIUM		1963.38	NA	NA	1600 J	1700 J	1650 J	1700 J	**2000 J**	1400 J	1600 J	**2900 J**	1600 J	NA	1900	900 J	1300 J	1700 J
MANGANESE	180	313.83	NA	NA	310 J	270 J	290 J	140 J	180 J	160 J	170 J	330 J	180 J	NA	220 J	75 J	150 J	160 J
THALLIUM	0.078	1.8	NA	NA	0.39	0.11 U	0.222	0.077 U	0.14 U	0.076 U	0.068 U	0.077 U	0.37	NA	0.1 U	0.069 U	0.078 U	0.082 U
VANADIUM	39	89.1	NA	NA	12	12	12	13	13	14	13	18	15	NA	15	18	18	25

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SS-EU17-0002	IOA-SS-EU19-0002	IOA-SS-EU23-0002	IOA-SS-EU27-0002	IOA-SS-EU29-0002	IOA-SS-EU29-0002-D	IOA-SS-EU29-0002-AVG	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-D	IOA-SS-EU32-0002-AVG	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002
LOCATION ID			IOA-SS-EU17	IOA-SS-EU19	IOA-SS-EU23	IOA-SS-EU27	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36
SAMPLE DATE			08/10/11	08/11/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/11/11	08/11/11	08/11/11	08/10/11	08/10/11	08/10/11	08/10/11
DEPTH			0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT			EU17	EU19	EU23	EU27	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil																
SEMIVOLATILES (UG/KG)																		
BAP EQUIVALENT-HALFND	15	2130	318 J	78.4 J	186 J	NA	1880 J	1960 J	1920 J	154 J	95 UJ	47.4 J	40.2 J	43.8 J	75.1 J	85.9 J	30.5 J	648 J
BAP EQUIVALENT-POS	15	2130	318 J	58 J	154 J	NA	1880 J	1960 J	1920 J	4 J	NA	27 J	19.3 J	23.2 J	57.1 J	63.9 J	0.7 J	648 J
BENZO(A)ANTHRACENE	150	810	200 J	48 J	110 J	NA	1700 J	1500 J	1600 J	40 J	95 UJ	20 J	16 J	18 J	37 J	51 J	18 UJ	630 J
BENZO(A)PYRENE	15	1828.78	220 J	46 J	120 J	NA	1300 J	1400 J	1350 J	92 UJ	95 UJ	20 J	15 J	17.5 J	42 J	51 J	18 UJ	440 J
BENZO(B)FLUORANTHENE	150	770	340 J	69 J	220 J	NA	2000 J	1900 J	1950 J	92 UJ	95 UJ	48 J	26 J	37 J	77 J	74 J	7 J	750 J
BENZO(K)FLUORANTHENE	1500	2700	130 J	25 J	87 J	NA	800 J	890 J	845 J	92 UJ	95 UJ	20 J	12 J	16 J	53 J	36 J	18 UJ	250 J
DIBENZO(A,H)ANTHRACENE	15	96	30 J	37 UJ	59 UJ	NA	150 J	150 J	150 J	180 UJ	190 UJ	37 UJ	38 UJ	37.5 UJ	36 UJ	40 UJ	36 UJ	52 J
INDENO(1,2,3-CD)PYRENE	150	175	120 J	37 UJ	59 UJ	NA	480 J	580 J	530 J	180 UJ	190 UJ	37 UJ	38 UJ	37.5 UJ	31 J	40 UJ	36 UJ	150 J
PESTICIDES/PCBS (UG/KG)																		
AROCLOR-1260	220		1800	7.4 U	8 J	7.3 U	59	63	61	86	150	7.4 U	7.7 U	7.55 U	7.1 U	7.8 U	7.1 U	7.6 U
HEPTACHLOR EPOXIDE	53		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL AROCLOR	220		1800	7.4 U	8 J	7.3 U	59	63	61	86	150	7.4 U	7.7 U	7.55 U	7.1 U	7.8 U	7.1 U	7.6 U
METALS (MG/KG)																		
ALUMINUM	7700	10499.1	6100	7400	6800	7100	7800	6000	6900	13000	7000	4800	4500	4650	7100	7600	6500	9400
ARSENIC	0.39	5.31	1.2	5.9	2.2	2.1	6.4	5	5.7	1.5	2.2	1.1	1.2	1.15	1.7	1.6	1.2	2.3
CALCIUM		6360	1100 J	810	1500	870 J	480 J	320 J	400 J	1100 J	1100 J	760	710	735	1300	1600	1200	1200
CHROMIUM	0.29	10.1	12	8.9	7.5	9.4	14	10	12	17	10	6.2	5.2	5.7	7	8.2	9	15
COBALT	2.3	3.98	2.8	3.9	3.4	4.4	3	2.1	2.55	3.9	4.1	3.7	3.6	3.65	4.3	5.6	3.6	4.9
IRON	5500	11300	15000	10000	12000	14000	21000	17000	19000	16000	18000	8800	8100	8450	15000	22000	12000	18000

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SS-EU17-0002	IOA-SS-EU19-0002	IOA-SS-EU23-0002	IOA-SS-EU27-0002	IOA-SS-EU29-0002	IOA-SS-EU29-0002-D	IOA-SS-EU29-0002-AVG	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-D	IOA-SS-EU32-0002-AVG	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002
LOCATION ID			IOA-SS-EU17	IOA-SS-EU19	IOA-SS-EU23	IOA-SS-EU27	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36
SAMPLE DATE			08/10/11	08/11/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/11/11	08/11/11	08/11/11	08/10/11	08/10/11	08/10/11	08/10/11
DEPTH			0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT			EU17	EU19	EU23	EU27	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil																
LEAD	400	301.7	69 J	27	26	25 J	20 J	12 J	16 J	9.3 J	10 J	7.1	6.5	6.8	10	9.9	8.2	32
MAGNESIUM		1963.38	1800 J	1700	1700	**3100 J**	1800 J	1100 J	1450 J	**3600 J**	**2600 J**	1700	1600	1650	**2500**	**2100**	**2300**	**3000**
MANGANESE	180	313.83	390 J	180 J	150 J	140 J	100 J	84 J	92 J	200 J	440 J	210 J	230 J	220 J	240 J	380 J	200 J	350 J
THALLIUM	0.078	1.8	0.07 U	0.078 U	0.11 U	0.075 U	0.088 U	0.088 U	0.088 U	0.089 U	0.079 U	0.093 U	0.086 U	0.0895 U	0.066 U	0.076 U	0.084 U	0.087 U
VANADIUM	39	89.1	20	15	20	33	39	30	34.5	21	17	12	11	11.5	19	16	11	19

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-D	IOA-SS-EU46-0002-AVG	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002	MW06013-NSO-112498-0	MW11131-NSO-122198-0	SB06001-NSO-120898-0
LOCATION ID			IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49	MW06-013	MW11-131	SB06-001
SAMPLE DATE			08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	11/24/98	12/21/98	12/08/98
DEPTH			0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49	EU37	EU18	EU28
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil															
SEMIVOLATILES (UG/KG)																	
BAP EQUIVALENT-HALFND	15	2130	7970 J	85.4 J	69.3 J	129 J	81 J	469 J	63.6 J	66.8 J	65.2 J	19 UJ	32.2 J	19 UJ	1800 U	87.7 J	6710 J
BAP EQUIVALENT-POS	15	2130	7970 J	65.1 J	47.3 J	112 J	60.1 J	354 J	43.8 J	47 J	45.4 J	NA	2.21 J	NA	NA	51.7 J	6710 J
BENZO(A)ANTHRACENE	150	810	6300 J	67 J	38 J	85 J	34 J	290 J	33 J	31 J	32 J	19 UJ	10 J	19 UJ	350 UJ	360 UJ	6000 J
BENZO(A)PYRENE	15	1828.78	5600 J	50 J	37 J	81 J	47 J	260 J	35 J	38 J	36.5 J	19 UJ	19 UJ	19 UJ	1800 U	34 J	4800 J
BENZO(B)FLUORANTHENE	150	770	7400 J	80 J	62 J	160 J	93 J	620 J	53 J	56 J	54.5 J	19 UJ	12 J	19 UJ	350 UJ	100 J	6100 J
BENZO(K)FLUORANTHENE	1500	2700	3200 J	32 J	26 J	67 J	33 J	210 J	20 J	24 J	22 J	19 UJ	19 UJ	19 UJ	350 UJ	100 J	4600 J
DIBENZO(A,H)ANTHRACENE	15	96	700 J	37 UJ	40 UJ	35 UJ	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ	2.1 U	6.6 J	290 J
INDENO(1,2,3-CD)PYRENE	150	175	2600 J	37 UJ	40 UJ	55 J	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ	350 UJ	360 UJ	3600 J
PESTICIDES/PCBS (UG/KG)																	
AROCLOR-1260	220		46	7.4 U	8 U	710	7.6 U	61	5 J	7.1 U	4.28 J	7.6 U	8 J	7.4 U	35 U	480 J	34 U
HEPTACHLOR EPOXIDE	53		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 U	8.4 J	63 J
TOTAL AROCLOR	220		46	7.4 U	8 U	710	7.6 U	61	5 J	7.1 U	4.28 J	7.6 U	8 J	7.4 U	40 U	480 J	39 U
METALS (MG/KG)																	
ALUMINUM	7700	10499.1	10000	9200	11000	7600	6800	8000	10000	10000	10000	7900	8500	6400	7380 J	5110 J	4740 J
ARSENIC	0.39	5.31	5.3	0.75	2.3	2.1	1.7	7.2	1.4	1.3	1.35	1.3	3.4	36	4.4 J	2.1	2.6
CALCIUM		6360	1400 J	750 J	610	1400	1000	1000	830	900	865	1700	1400	1200	899	725 J	761
CHROMIUM	0.29	10.1	15	10	9.3	11	7.9	14	11	9.6	10.3	16	9.9	7.9	10.6	7.7	11.9
COBALT	2.3	3.98	3.5	2.6	3.7	4	4.9	3.8	3.1	2.7	2.9	6.3	5.2	4	3.6	2.2 J	3.4
IRON	5500	11300	16000	11000	19000	16000	14000	14000	13000	11000	12000	11000	20000	45000	14700	9160 J	11100

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-D	IOA-SS-EU46-0002-AVG	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002	MW06013-NSO-112498-0	MW11131-NSO-122198-0	SB06001-NSO-120898-0
LOCATION ID			IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49	MW06-013	MW11-131	SB06-001
SAMPLE DATE			08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	08/10/11	11/24/98	12/21/98	12/08/98
DEPTH			0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49	EU37	EU18	EU28
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil															
LEAD	400	301.7	100 J	7.1 J	16	35	20	320	33	24	28.5	10	8.1	16	8.5 J	17.3 J	90.7
MAGNESIUM		1963.38	1900 J	**2000 J**	**2000**	**2200**	**2400**	1900	**2100**	1900	**2000**	**4900**	**2800**	1700	**2430 J**	995 J	1600
MANGANESE	180	313.83	210 J	130 J	240 J	310 J	390 J	220 J	160 J	130 J	145 J	220 J	310 J	280 J	150 J	96.7 J	209
THALLIUM	0.078	1.8	0.083 U	0.075 U	0.1 U	0.066 U	0.077 U	0.092 U	0.077 U	0.074 U	0.0755 U	0.079 U	0.081 U	0.085 U	0.32 U	0.34 U	0.31 U
VANADIUM	39	89.1	25	16	20	21	15	25	17	16	16.5	17	15	18	14.9 J	14.9 J	33.1

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			SB06002-NSO-120898-0	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-D	SB06008-NSO-120898-0-AVG	SB06009-NSO-120898-0	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06012-NSO-120998-0	SB06-343-NSO-072503	SB06-351-NSO-072503
LOCATION ID			SB06-002	SB06-004	SB06-005	SB06-006	SB06-007	SB06-008	SB06-008	SB06-008	SB06-009	SB06-010	SB06-011	SB06-012	SB06-343	SB06-351
SAMPLE DATE			12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/09/98	12/09/98	12/09/98	07/25/03	07/25/03
DEPTH			0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU28	EU39	EU39	EU38	EU38	EU37	EU37	EU37	EU37	EU26	EU26	EU38	EU24	EU37
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil														
SEMIVOLATILES (UG/KG)																
BAP EQUIVALENT-HALFND	15	2130	15600 J	328 J	1560 J	3530 J	1220 J	311 J	893 J	602 J	224 J	480 J	89.5 J	2.2 UJ	260 U	300 U
BAP EQUIVALENT-POS	15	2130	15600 J	328 J	1560 J	3530 J	1220 J	311 J	893 J	602 J	224 J	480 J	87.8 J	NA	NA	NA
BENZO(A)ANTHRACENE	150	810	12000 J	350 J	2700 J	2900 J	3500 J	270 J	430	350 J	280 J	280 J	78 J	370 UJ	260 U	300 U
BENZO(A)PYRENE	15	1828.78	11000 J	190 J	750 J	2600 J	540 J	160 J	610 J	385 J	100 J	330 J	45 J	2.2 UJ	260 U	300 U
BENZO(B)FLUORANTHENE	150	770	17000 J	560 J	2800 J	2900 J	2000 J	630	1000	815	500	440 J	170 J	370 UJ	260 U	300 U
BENZO(K)FLUORANTHENE	1500	2700	9400 J	130 J	2800 J	2500 J	1700 J	150 J	230 J	190 J	150 J	130 J	340 UJ	370 UJ	260 U	300 U
DIBENZO(A,H)ANTHRACENE	15	96	720 J	19 J	87 J	100 J	52 J	31 J	88 J	59.5 J	13 J	57 J	7.9 J	2.2 U	260 U	300 U
INDENO(1,2,3-CD)PYRENE	150	175	8300 J	260 J	1400 J	2200 J	560 J	280 J	490	385 J	310 J	190 J	100 J	370 UJ	260 U	300 U
PESTICIDES/PCBS (UG/KG)																
AROCLOR-1260	220		35 U	36 U	36 U	35 U	35 U	35 U	36 U	35.5 U	36 U	35 U	34 U	37 U	31 J	31 U
HEPTACHLOR EPOXIDE	53		200 J	2.7 J	21 J	13 J	26 J	9.6 J	7.8 J	8.7 J	12 J	6.2 J	1.7 U	1.8 U	0.81 U	0.99 U
TOTAL AROCLOR	220		40 U	41.1 U	41.1 U	39.9 U	39.9 U	40 U	41.1 U	40.6 U	41.1 U	40 U	39 U	42.1 U	31 J	31 U
METALS (MG/KG)																
ALUMINUM	7700	10499.1	5230 J	5230 J	8890 J	5230 J	5680 J	6960 J	6280 J	6620 J	4470 J	7620 J	7100 J	8950 J	5600	5900
ARSENIC	0.39	5.31	4.1	1.7	8.1	10.4	7.3	3.1	4.6	3.85	0.81 J	3 J	2.1	2.8	3 J	11 J
CALCIUM		6360	640	1550	2570	1140	1110	1620	1040	1330	2740	3780	1000 J	676 J	440 U	240 U
CHROMIUM	0.29	10.1	18.7	6.8	149	12.3	10.9	11.8	10.4	11.1	7.6	12	9.1 J	9.2 J	6.8	9.5
COBALT	2.3	3.98	4	2.4 J	5.9	3.6	3.6	3.8	3.3	3.55	4	4.5	4.6	3.4	3.9 J	2.7 J
IRON	5500	11300	13200	8310	16100	12200	9970	12100	11100	11600	6660	13200 J	13100 J	13400 J	11000	10000

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
PAGE 10 OF 14

SAMPLE ID			SB06002-NSO-120898-0	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-D	SB06008-NSO-120898-0-AVG	SB06009-NSO-120898-0	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06012-NSO-120998-0	SB06-343-NSO-072503	SB06-351-NSO-072503
LOCATION ID			SB06-002	SB06-004	SB06-005	SB06-006	SB06-007	SB06-008	SB06-008	SB06-008	SB06-009	SB06-010	SB06-011	SB06-012	SB06-343	SB06-351
SAMPLE DATE			12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/08/98	12/09/98	12/09/98	12/09/98	07/25/03	07/25/03
DEPTH			0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU28	EU39	EU39	EU38	EU38	EU37	EU37	EU37	EU37	EU26	EU26	EU38	EU24	EU37
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil														
LEAD	400	301.7	114	32.1	1280	141	75.6	62.9	57.5	60.2	11.7	28.9	8.7 J	7.7 J	10	7.8
MAGNESIUM		1963.38	**2160**	1240	**2320**	1850	1760	1880	1730	1800	1380 J	**2560 J**	**2790 J**	**2050 J**	1800	1200
MANGANESE	180	313.83	294	132	207	180	138	127	143	135	92.5 J	156 J	233 J	157 J	210	66
THALLIUM	0.078	1.8	0.34 U	0.33 U	0.28 U	0.30 U	0.33 U	0.32 U	0.31 U	0.315 U	0.37 U	0.30 U	0.32 U	0.29 U	0.62 UJ	0.72 UJ
VANADIUM	39	89.1	38	16.1	45.2	27.9	24.1	34.2	25.6	29.9	13.9 J	39.8 J	13.8 J	16.6 J	20	12

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-D	SB07-305-NSO-1104020-AVG	SB07-306-NSO-1104020	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-311-NSO-1104020	SB07-312-NSO-1104020	SB07-326-NSO-0716031
LOCATION ID			SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-311	SB07-312	SB07-326
SAMPLE DATE			11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	07/16/03	11/04/02	11/04/02	07/16/03
DEPTH			0 - 0.5 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0 - 0.5 FT	0.5 - 1 FT	0 - 0.5 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	1 - 1.5 FT
EXPOSURE UNIT			EU15	EU15	EU15	EU15	EU15	EU08	EU08	EU08	EU08	EU08	EU08	EU15	EU14	EU15
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil														
SEMIVOLATILES (UG/KG)																
BAP EQUIVALENT-HALFND	15	2130	NA	136 J	92.8 J	114 J	83.6 J	96.7 J	NA	52.3 J	NA	621 J	NA	124	391	NA
BAP EQUIVALENT-POS	15	2130	NA	136 J	92.8 J	114 J	73.1 J	69.3 J	NA	51 J	NA	621 J	NA	124	391	NA
BENZO(A)ANTHRACENE	150	810	NA	77 J	79 J	78 J	59 J	260 U	NA	29 J	NA	310	NA	NA	NA	NA
BENZO(A)PYRENE	15	1828.78	NA	66 J	61 J	63.5 J	56 J	56	NA	30 J	NA	400	NA	100	330	NA
BENZO(B)FLUORANTHENE	150	770	NA	130 J	110 J	120 J	70 J	38 J	NA	59 J	NA	610	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	1500	2700	NA	65 J	48 J	56.5 J	34 J	260 U	NA	260 U	NA	230 J	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	15	96	NA	40 J	6.6 J	23.3 J	21 U	9.5 J	NA	7.3 J	NA	95	NA	24	61	NA
INDENO(1,2,3-CD)PYRENE	150	175	NA	87 J	58 J	72.5 J	38 J	260 U	NA	49 J	NA	310	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)																
AROCLOR-1260	220		17 J	230	200	215	49	20 J	1800	160	250	220	NA	1000 J	170	1500
HEPTACHLOR EPOXIDE	53		NA	0.85 U	NA	0.85 U	0.82 U	0.83 U	NA	0.85 U	NA	0.84 U	NA	NA	NA	NA
TOTAL AROCLOR	220		17 J	230	200	215	49	20 J	1800	160	250	220	NA	1000 J	170	1500
METALS (MG/KG)																
ALUMINUM	7700	10499.1	NA	4900 J	4000 J	4450 J	2600 J	2800 J	NA	7500 J	NA	8100 J	NA	NA	NA	NA
ARSENIC	0.39	5.31	NA	3.7	5.5	4.6	5.2	5.2	NA	3.4	NA	2.9	4.5	NA	NA	NA
CALCIUM		6360	NA	600	430	515	140 U	320	NA	1200	NA	1100	NA	NA	NA	NA
CHROMIUM	0.29	10.1	NA	9.6	8.1	8.85	6	5.8	NA	12	NA	11	5.5	NA	NA	NA
COBALT	2.3	3.98	NA	2.8 J	2.4 U	2 J	1.7 U	1.9 U	NA	7.4	NA	6.3 J	NA	NA	NA	NA
IRON	5500	11300	NA	9600	11000	10300	8800	10000	NA	15000	NA	15000	NA	NA	NA	NA

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-D	SB07-305-NSO-1104020-AVG	SB07-306-NSO-1104020	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-311-NSO-1104020	SB07-312-NSO-1104020	SB07-326-NSO-0716031
LOCATION ID			SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-311	SB07-312	SB07-326
SAMPLE DATE			11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	11/04/02	07/16/03	11/04/02	11/04/02	07/16/03
DEPTH			0 - 0.5 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0 - 0.5 FT	0.5 - 1 FT	0 - 0.5 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	1 - 1.5 FT
EXPOSURE UNIT			EU15	EU15	EU15	EU15	EU15	EU08	EU08	EU08	EU08	EU08	EU08	EU15	EU14	EU15
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil														
LEAD	400	301.7	NA	45	27	36	6.4	6.8	NA	40	NA	25	6	NA	NA	NA
MAGNESIUM		1963.38	NA	1100	920	1010	530	540	NA	**3500**	NA	**3000**	NA	NA	NA	NA
MANGANESE	180	313.83	NA	100	94	97	60	68	NA	350	NA	370	NA	NA	NA	NA
THALLIUM	0.078	1.8	NA	0.62 UJ	0.67 UJ	0.645 UJ	0.21 J	0.62 UJ	NA	0.67 UJ	NA	0.65 UJ	NA	NA	NA	NA
VANADIUM	39	89.1	NA	18	20	19	17	19	NA	20	NA	24	NA	NA	NA	NA

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			SB07-327-NSO-0716031	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-337-NSO-101503	SB07-339-NSO-101503	SB09007-NSO-121698-0	SB09008-NSO-121698-0	SB09009-NSO-121698-0	SB11-201-NSO-0515010	SS06-020-NSO-102798	SS06-020-NSO-102798-D	SS06-020-NSO-102798-AVG
LOCATION ID			SB07-327	SB07-328	SB07-329	SB07-329	SB07-337	SB07-339	SB09-007	SB09-008	SB09-009	SB11-201	SS06-020	SS06-020	SS06-020
SAMPLE DATE			07/16/03	07/16/03	07/16/03	07/16/03	10/15/03	10/15/03	12/16/98	12/16/98	12/16/98	05/15/01	10/27/98	10/27/98	10/27/98
DEPTH			1 - 1.5 FT	1 - 2 FT	0 - 1 FT	1 - 2 FT	0.5 - 1.5 FT	0.5 - 1.5 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU15	EU15	EU15	EU15	EU15	EU07	EU20	EU21	EU22	EU11	EU39	EU39	EU39
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil													
SEMIVOLATILES (UG/KG)															
BAP EQUIVALENT-HALFND	15	2130	NA	NA	NA	NA	NA	NA	58.1 J	61.8 J	15 J	79.9 J	NA	NA	NA
BAP EQUIVALENT-POS	15	2130	NA	NA	NA	NA	NA	NA	2.6 J	4.7 J	14.6 J	79.9 J	NA	NA	NA
BENZO(A)ANTHRACENE	150	810	NA	NA	NA	NA	NA	NA	350 U	360 UJ	2.5 U	52 J	NA	NA	NA
BENZO(A)PYRENE	15	1828.78	NA	NA	NA	NA	NA	NA	2.6 J	4.7 J	12 J	37 J	NA	NA	NA
BENZO(B)FLUORANTHENE	150	770	NA	NA	NA	NA	NA	NA	350 U	360 UJ	2.5 U	89 J	NA	NA	NA
BENZO(K)FLUORANTHENE	1500	2700	NA	NA	NA	NA	NA	NA	350 U	360 UJ	2.5 U	96 J	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	15	96	NA	NA	NA	NA	NA	NA	2.1 U	2.2 U	2.6 J	23 J	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	150	175	NA	NA	NA	NA	NA	NA	350 U	360 UJ	2.5 U	47 J	NA	NA	NA
PESTICIDES/PCBS (UG/KG)															
AROCLOR-1260	220		2900	500	1200	600	330	290	NA	NA	NA	440 J	NA	NA	NA
HEPTACHLOR EPOXIDE	53		NA	NA	NA	NA	NA	NA	NA	NA	NA	4 J	NA	NA	NA
TOTAL AROCLOR	220		2900	500	1200	600	330	290	NA	NA	NA	440 J	NA	NA	NA
METALS (MG/KG)															
ALUMINUM	7700	10499.1	NA	NA	NA	NA	NA	NA	5280 J	6620 J	7330 J	6900 J	NA	NA	NA
ARSENIC	0.39	5.31	NA	NA	NA	NA	NA	NA	1.8 J	1.9 J	1.9 J	3.4	NA	NA	NA
CALCIUM		6360	NA	NA	NA	NA	NA	NA	653 J	702 J	759 J	1100 J	NA	NA	NA
CHROMIUM	0.29	10.1	NA	NA	NA	NA	NA	NA	6.1 J	7.2 J	8	11	NA	NA	NA
COBALT	2.3	3.98	NA	NA	NA	NA	NA	NA	4.6	4	3.4	6	NA	NA	NA
IRON	5500	11300	NA	NA	NA	NA	NA	NA	11500 J	10700 J	11900 J	10000 J	NA	NA	NA

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
PAGE 14 OF 14

SAMPLE ID			SB07-327-NSO-0716031	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-337-NSO-101503	SB07-339-NSO-101503	SB09007-NSO-121698-0	SB09008-NSO-121698-0	SB09009-NSO-121698-0	SB11-201-NSO-0515010	SS06-020-NSO-102798	SS06-020-NSO-102798-D	SS06-020-NSO-102798-AVG
LOCATION ID			SB07-327	SB07-328	SB07-329	SB07-329	SB07-337	SB07-339	SB09-007	SB09-008	SB09-009	SB11-201	SS06-020	SS06-020	SS06-020
SAMPLE DATE			07/16/03	07/16/03	07/16/03	07/16/03	10/15/03	10/15/03	12/16/98	12/16/98	12/16/98	05/15/01	10/27/98	10/27/98	10/27/98
DEPTH			1 - 1.5 FT	1 - 2 FT	0 - 1 FT	1 - 2 FT	0.5 - 1.5 FT	0.5 - 1.5 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT			EU15	EU15	EU15	EU15	EU15	EU07	EU20	EU21	EU22	EU11	EU39	EU39	EU39
CRITERIA	EPA RSL - Res. Soil	BKG - Surf.Soil													
LEAD	400	301.7	NA	NA	NA	NA	NA	NA	8 J	16.5 J	29.8 J	23	550	456	503
MAGNESIUM		1963.38	NA	NA	NA	NA	NA	NA	**2170 J**	1660 J	1710 J	1600	NA	NA	NA
MANGANESE	180	313.83	NA	NA	NA	NA	NA	NA	357 J	191 J	185 J	210	NA	NA	NA
THALLIUM	0.078	1.8	NA	NA	NA	NA	NA	NA	0.29 UJ	0.32 UJ	0.32 UJ	0.96 U	NA	NA	NA
VANADIUM	39	89.1	NA	NA	NA	NA	NA	NA	13 J	16 J	21.6 J	19	NA	NA	NA

BLACK SHADING-ABOVE RSL AND BKG; BLUE SHADING-ABOVE RSL, LESS THAN BKG; GRAY SHADING-DETECTED;
BOLD-EXCEEDS BKG, NO RSL; U - NOT DETECTED; J-QUANTITATION APPROXIMATE; NA-NOT ANALYZED

TABLE 3-2
DIOXIN ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID		IOA-SS-EU07-0002	IOA-SS-EU09-0002	IOA-SS-EU13-0002	IOA-SS-EU15-0002	IOA-SS-EU15-0002-D	IOA-SS-EU15-0002-AVG	IOA-SS-EU27-0002	IOA-SS-EU28-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	IOA-SS-EU38-0002	IOA-SS-EU39-0002
LOCATION ID		IOA-SS-EU07	IOA-SS-EU09	IOA-SS-EU13	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU27	IOA-SS-EU28	IOA-SS-EU36	IOA-SS-EU37	IOA-SS-EU38	IOA-SS-EU39
SAMPLE DATE		08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/09/11	08/10/11	08/09/11	08/10/11	08/09/11	08/09/11	08/09/11
DEPTH		0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT		EU07	EU09	EU13	EU15	EU15	EU15	EU27	EU28	EU36	EU37	EU38	EU39
CRITERIA	EPA RSL RES Soil												
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD	15000	415	222	462	470	299	384	544	704	583	359	50.2	203
1,2,3,4,6,7,8,9-OCDF	15000	13.9	20.5	30.4	38.5 J	21.9 J	30.2 J	7.14	6.03	5.07	5.87	0.986 U	24
1,2,3,4,6,7,8-HPCDD	450	15.9	20.5	60.2	40.3	26.8	33.6	37.6	16.7	21.2	12	1.04 J	21.2
1,2,3,4,6,7,8-HPCDF	450	8.14	15.6	27.1	16	9.85	12.9	5.42	4.77	4.1	4.91	0.404 J	17.5
1,2,3,4,7,8,9-HPCDF	450	0.883 U	2.05 J	1.31 J	1.4 J	0.848 J	1.12 J	0.989 U	1.08 U	0.972 U	1.05 U	0.986 U	0.952 J
1,2,3,4,7,8-HXCDD	45	0.314 J	0.384 J	0.957 J	0.379 J	0.368 J	0.374 J	0.344 J	0.254 J	0.486 U	0.135 J	0.493 U	0.408 J
1,2,3,4,7,8-HXCDF	45	0.51 J	5.13	2.22 J	1.8 J	1.05 J	1.42 J	1.04 J	1.3 J	0.892 J	0.994 J	0.247 U	3.92
1,2,3,6,7,8-HXCDD	45	0.598 J	1.33 J	3.03	1.86 J	1.08 J	1.47 J	1.06 J	0.539 U	0.765 J	0.302 J	0.493 U	1.3 J
1,2,3,6,7,8-HXCDF	45	0.519 J	7.61	2.61 J	1.76 J	1.05 J	1.4 J	1.31 J	1.75 J	0.912 J	0.568 J	0.247 U	4.06
1,2,3,7,8,9-HXCDD	45	0.36 J	0.918 J	1.62 J	1.14 J	0.728 J	0.934 J	0.735 J	0.539 U	0.454 J	0.317 J	0.493 U	0.937 J
1,2,3,7,8,9-HXCDF	45	0.883 U	2.02 J	0.811 J	0.974 U	1.07 U	1.02 U	0.989 U	0.502 J	0.972 U	1.05 U	0.986 U	1.09 J
1,2,3,7,8-PECDD	4.5	0.221 U	1.7 J	0.642 J	0.587 J	1.32 J	0.954 J	0.247 U	0.269 U	0.239 J	0.264 U	0.247 U	0.534 J
1,2,3,7,8-PECDF	150	1.49 J	1.01 J	0.739 J	0.427 J	0.248 J	0.338 J	0.28 J	0.539 U	0.281 J	0.294 J	0.493 U	0.87 J
2,3,4,6,7,8-HXCDF	45	0.998 J	17.5	5.19	3.27	2.38 J	2.82 J	2.83	4.23	2.15 J	0.868 J	0.247 U	8.9
2,3,4,7,8-PECDF	15	1.02 J	24.3	6.5	4.63	2.98	3.8	4.04	7.6	3.18	1.32 J	0.142 J	14.6
2,3,7,8-TCDD	4.5	0.177 U	0.366 J	0.623	0.222 U	0.214 U	0.218 U	0.367 UJ	0.219 U	0.422 J	0.439 J	0.197 U	1.68
2,3,7,8-TCDF	45	0.371 U	1.11 J	0.87	0.445 U	0.318 U	0.382 U	0.659 J	0.568 UJ	0.444 U	0.419 U	0.194 UJ	1.15 UJ
TEQ	4.5	1.05 J	13.4 J	6 J	3.74 J	3.36 J	3.55 J	2.61 J	3.51 J	2.57 J	1.44 J	0.0721 J	9.15 J
TEQ HALFND	4.5	1.32 J	13.4 J	6 J	3.92 J	3.53 J	3.72 J	2.98 J	3.85 J	2.67 J	1.65 J	0.477 J	9.2 J
TOTAL HPCDD	94	35.5	45.8	124	96.4	61.7	79	80.2	40.1	50.8	28.4	2.54 J	46.2
TOTAL HPCDF		19.9	39.3	59.8	45.6	27.3	36.4	11.9	10.5 J	8.25	6.72 J	0.563 J	32.3 J
TOTAL HXCDD		5.16 J	12.8	21.3 J	12.9 J	8.39 J	10.6 J	9.93 J	3.3 J	5.21 J	2.64 J	0.493 U	11.7
TOTAL HXCDF		12.2 J	169 J	57.4 J	38	25.3 J	31.6 J	28.6	43.4 J	21 J	9.48 J	0.431 J	92.9
TOTAL PECDD		0.569 J	10.1 J	6.54 J	3.63 J	3.36 J	3.5 J	3.58 J	1.75 J	2.01 J	0.45 J	0.247 U	7.16 J
TOTAL PECDF		12.3 J	225	56.9	41.1 J	27.3 J	34.2 J	39.8 J	57.3 J	27 J	12.2 J	0.664 J	124 J
TOTAL TCDD		0.36 J	2.63 J	4.51 J	2.59 J	0.877 J	1.73 J	1.88 J	0.219 U	1.21 J	0.439 J	0.197 U	4.52 J
TOTAL TCDF		2.67 J	52.8	19.6 J	13.2 J	9.73 J	11.5 J	12.8 J	13.2 J	7.16 J	5.5 J	0.922 J	39 J

BLACK SHADING - RSL EXCEEDED; LIGHT SHADING - DETECTED;
U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE 3-2
DIOXIN ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
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SAMPLE ID		IOA-SS-EU43-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-D	IOA-SS-EU46-0002-AVG	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06-304-NSO-0716030	SB06-343-NSO-072503	SB06-351-NSO-072503
LOCATION ID		IOA-SS-EU43	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	SB06-010	SB06-011	SB06-304	SB06-343	SB06-351
SAMPLE DATE		08/10/11	08/10/11	08/10/11	08/10/11	12/09/98	12/09/98	07/16/03	07/25/03	07/25/03
DEPTH		0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT		EU43	EU46	EU46	EU46	EU26	EU26	EU26	EU24	EU37
CRITERIA	EPA RSL RES Soil									
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	4610	768	633	700	313.74 R	165.04 U	32	47	1900
1,2,3,4,6,7,8,9-OCDF	15000	20.3	6.39	5.94	6.16	28.27 R	15.99 J	57	0.41 U	47
1,2,3,4,6,7,8-HPCDD	450	270	31	22.2	26.6	13.07 R	7.36 U	2 U	1.7 U	220
1,2,3,4,6,7,8-HPCDF	450	30.6	3.96	3.3	3.63	17.49 R	8.86	32	0.47 U	40
1,2,3,4,7,8,9-HPCDF	450	2.27 J	0.99 U	0.988 U	0.989 U	0.64 R	0.35	0.75 U	0.25 U	2 U
1,2,3,4,7,8-HXCDD	45	2.23 J	0.349 J	0.206 J	0.278 J	0.21 R	0.11 J	0.21 U	0.30 U	2.4 U
1,2,3,4,7,8-HXCDF	45	4.46	0.744 J	0.709 J	0.726 J	4.46 R	2.1	3.5 J	0.20 U	4.1 J
1,2,3,6,7,8-HXCDD	45	5.83	0.814 J	0.525 J	0.67 J	0.56 R	0.24 J	0.21 U	0.28 U	9
1,2,3,6,7,8-HXCDF	45	3.71	1.06 J	0.746 J	0.903 J	1.48 R	0.69	1.9 U	0.19 U	2.8 U
1,2,3,7,8,9-HXCDD	45	4.18	0.791 J	0.4 J	0.596 J	0.52 R	0.17 J	0.20 U	0.83 U	4.1 J
1,2,3,7,8,9-HXCDF	45	0.918 J	0.366 J	0.988 U	0.43 J	0.10 R	0.17 U	0.69 U	0.23 U	0.80 U
1,2,3,7,8-PECDD	4.5	4.1 J	0.318 J	0.247 U	0.221 J	0.16 R	0.09 U	0.37 U	0.47 U	0.67 U
1,2,3,7,8-PECDF	150	1.53 J	0.353 J	0.494 U	0.3 J	0.56 R	0.26	0.68 U	0.33 U	1.1 U
2,3,4,6,7,8-HXCDF	45	7.59	2.31 J	1.69 J	2 J	1.22 R	0.62 J	0.98 U	0.27 U	2.1 U
2,3,4,7,8-PECDF	15	10.6	3.58	2.2 J	2.89 J	0.80 R	0.34	0.62 U	0.33 U	3.2 J
2,3,7,8-TCDD	4.5	0.277 U	0.492 J	0.198 U	0.296 J	6.85 R	0.92	4.2	0.33 U	0.32 U
2,3,7,8-TCDF	45	4.15	0.428 UJ	0.464 UJ	0.446 UJ	0.31 R	0.23 J	0.71 U	0.33 U	7.1
TEQ	4.5	15.1 J	3.12 J	1.53 J	2.32 J	6.85 R	1.54 J	4.9 J	0.0141	6.57 J
TEQ HALFND	4.5	15.2 J	3.15 J	1.84 J	2.5 J	6.85 R	1.66 J	5.44 J	0.612	7.5 J
TOTAL HPCDD	94	827	73.2	51.2	62.2	23.31	12.78	2.2 U	1.9 U	440
TOTAL HPCDF		77.4	9.82	8.16	8.99	25.46	12	35	0.47 U	96
TOTAL HXCDD		67.4	7.67 J	3.92 J	5.8 J	4.2	1.33	0.59 U	4.7	59
TOTAL HXCDF		88.3 J	24 J	15.9 J	20 J	31.51	12.13	18	0.67 U	56
TOTAL PECDD		15.4	2.77 J	0.54 J	1.66 J	1.59	0.34	0.37 U	3.2	2.3 U
TOTAL PECDF		104 J	34.1 J	22.4	28.2 J	34.62	16.29	11	1.3 U	26
TOTAL TCDD		0.885 J	0.901 J	0.198 U	0.5 J	7.15	0.92	4.8	18	0.32 U
TOTAL TCDF		33.4 J	8.15 J	5.88 J	7.02 J	12.18	6.04	7.9	97	77

BLACK SHADING - RSL EXCEEDED; LIGHT SHADING - DETECTED;
U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE 3-3
ANALYTICAL RESULTS - RIA 33 SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA33-SB14-0507-AVG
LOCATION ID			IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14
SAMPLE DATE			08/15/11	08/15/11	08/15/11	08/15/11	08/15/11	08/15/11	08/15/11
DEPTH			5 - 7 FT	3 - 5 FT	3 - 5 FT	3 - 5 FT	5 - 7 FT	5 - 7 FT	5 - 7 FT
CRITERIA	EPA RSL RES Soil	BKG Subsurface Soil							
VOLATILES (UG/KG)									
1,1,1-TRICHLOROETHANE	870000		0.41 U	0.36 U	0.39 U	4 J	0.48 U	0.41 U	0.445 U
1,1-DICHLOROETHANE	3300		0.41 U	0.36 U	0.39 U	3 J	0.48 U	0.41 U	0.445 U
TRICHLOROETHENE	910		0.41 U	0.36 U	0.39 U	7 J	0.48 U	0.41 U	0.445 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
2-METHYLNAPHTHALENE	31000		19 J	17 UJ	17 UJ	33 J	7 J	17 UJ	7.75 J
ACENAPHTHENE	340000		73 J	17 UJ	17 UJ	19 J	17 UJ	17 UJ	17 UJ
ACENAPHTHYLENE	340000		55 J	17 UJ	17 UJ	17 UJ	15 J	11 J	13 J
ANTHRACENE	1700000		150 J	17 UJ	17 UJ	41 J	39 J	29 J	34 J
BAP EQUIVALENT-HALFND	15		584 J	30.6 J	17 UJ	244 J	152 J	121 J	136 J
BAP EQUIVALENT-POS	15		584 J	11.8 J	NA	231 J	135 J	104 J	120 J
BENZO(A)ANTHRACENE	150	600	520 J	15 J	17 UJ	220 J	140 J	110 J	125 J
BENZO(A)PYRENE	15	16	380 J	9 J	17 UJ	170 J	98 J	75 J	86.5 J
BENZO(B)FLUORANTHENE	150	810	650 J	13 J	17 UJ	290 J	170 J	130 J	150 J
BENZO(G,H,I)PERYLENE	170000	330	230 J	17 UJ	17 UJ	92 J	60 J	47 J	53.5 J
BENZO(K)FLUORANTHENE	1500	320	250 J	10 UJ	17 UJ	100 J	78 J	52 J	65 J
CHRYSENE	15000	710	550 J	13 J	17 UJ	240 J	140 J	100 J	120 J
DIBENZO(A,H)ANTHRACENE	15	1.7	64 J	34 UJ	34 UJ	26 UJ	35 UJ	35 UJ	35 UJ
FLUORANTHENE	230000	1100	870 J	24 J	17 UJ	340 J	240 J	200 J	220 J
FLUORENE	230000		89 J	17 UJ	17 UJ	17 J	16 J	11 J	13.5 J
INDENO(1,2,3-CD)PYRENE	150	390	200 J	34 UJ	34 UJ	86 J	49 J	40 J	44.5 J
NAPHTHALENE	3600		33 J	17 UJ	17 UJ	11 J	12 J	17 UJ	10.2 J
PHENANTHRENE	170000	360	610 J	11 J	17 UJ	190 J	150 J	120 J	135 J
PYRENE	170000	10000	910 J	20 J	17 UJ	370 J	210 J	160 J	185 J
METALS (MG/KG)									
ALUMINUM	7700	8518.54	7300	6800	7300	6700	7900	7000	7450
ANTIMONY	3.1	3.65	0.3	0.083 U	0.056 U	0.130 U	0.53	0.45	0.49
ARSENIC	0.39	1.89	1.9	1.7	1.7	2.3	1.5	1.5	1.5
BARIUM	1500	27.03	16	13	12	17	15	14	14.5
BERYLLIUM	16	0.44	0.37	0.4	0.54	0.52	0.38	0.42	0.4
CADMIUM	7	0.115	0.19	0.18	0.19	0.28	0.018 J	0.2	0.19 J
CALCIUM		1546.58	1500	1000	1100	1700	1100	1100	1100
CHROMIUM	0.29	10.15	10	11	9.7	8.9	9.2	7.3	8.25
COBALT	2.3	4.74	4.3	4.7	3.9	4.7	6.8	6.6	6.7
COPPER	310	14.2	9.6	9.7	9.4	12	9	8.3	8.65
IRON	5500	11448.94	13000	14000	18000	11000	14000	14000	14000
LEAD	400	9.27	20	6.6	6.5	16	8.1	7.5	7.8

BLACK SHADING - EXCEEDS RSL AND BKG; BLUE SHADING - EXCEEDS RSL BUT LESS THAN THE BKG;
GRAY SHADING - DETECTED; U - NOT DETECTED; J - QUANTITATION APPROXIMATE

TABLE 3-3
ANALYTICAL RESULTS - RIA 33 SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA33-SB14-0507-AVG
LOCATION ID			IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14
SAMPLE DATE			08/15/11	08/15/11	08/15/11	08/15/11	08/15/11	08/15/11	08/15/11
DEPTH			5 - 7 FT	3 - 5 FT	3 - 5 FT	3 - 5 FT	5 - 7 FT	5 - 7 FT	5 - 7 FT
CRITERIA	EPA RSL RES Soil	BKG Subsurface Soil							
MAGNESIUM		2246.08	2100	2400	2300	2000	2400	2200	2300
MANGANESE	180	413.84	240 J	170 J	310 J	180 J	320 J	320 J	320 J
MERCURY	1	0.11	0.018 J	0.0022 J	0.002 J	0.012 J	0.0077 J	0.0085 J	0.0081 J
NICKEL	150	6.5	8.5	7.8	7.8	8.9	8.9	7.1	8
POTASSIUM		457.21	290 J	440 J	360 J	360 J	360 J	400 J	380 J
SODIUM		144	57 J	50 J	52 J	58 J	46 J	47 J	46.5 J
THALLIUM	0.078	0.22	0.087 U	0.087 U	0.074 U	0.090 J	0.090 U	0.074 U	0.082 U
VANADIUM	39	17.08	20	15	16	15	15	14	14.5
ZINC	2300	28.74	42	38	40	40	33	36	34.5

BLACK SHADING - EXCEEDS RSL AND BKG; BLUE SHADING - EXCEEDS RSL BUT LESS THAN THE BKG;
GRAY SHADING - DETECTED; U - NOT DETECTED; J - QUANTITATION APPROXIMATE

TABLE 3-4
ANALYTICAL RESULTS - RIA 82 SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID			IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
LOCATION ID			IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE DATE			08/09/11	08/11/11	08/11/11	08/11/11
DEPTH			6 - 8 FT	6 - 8 FT	6 - 8 FT	6 - 8 FT
CRITERIA	EPA RSL Res Soil	BKG Subsurface Soil				
METALS (MG/KG)						
ALUMINUM	7700	8518.54	3600	4200	4600	4400
ARSENIC	0.39	1.89	0.220 J	0.180 J	0.57	0.130 J
BARIUM	1500	27.03	7.8	11	9.8	9.5
BERYLLIUM	16	0.44	0.170 U	0.260 J	0.27	0.260 U
CADMIUM	7	0.115	0.083 U	0.15	0.14	0.110 U
CALCIUM		1546.58	820	1300	1000	1100
CHROMIUM	0.29	10.15	4.7	6.3	6.2	5.5
COBALT	2.3	4.74	1.9	2.3	2.6	2.6
COPPER	310	14.2	3.6	4.6	6.1	6.5
IRON	5500	11448.94	4900	6000	7100	6000
LEAD	400	9.27	2.6	3.6	3.5	3.5
MAGNESIUM		2246.08	1100	1300	1600	1400
MANGANESE	180	413.84	65 J	90 J	92 J	82 J
NICKEL	150	6.5	3.8	4.5	5.1	5
POTASSIUM		457.21	250 J	310 J	310 J	270 J
SODIUM		144	36 J	51 J	41 J	43 J
VANADIUM	39	17.08	8.5	11	12	9.2
ZINC	2300	28.74	17	19	26	23

BLUE SHADING - EXCEEDS RSL BUT LESS THAN BKG; GRAY SHADING - DETECTED;
U - NOT DETECTED; J - QUANTITATION APPROXIMATE

TABLE 4-1
SELECTION OF EXPOSURE PATHWAYS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil	Surface Soil	IOA	Commercial Receptors	Child	Ingestion Dermal	Quant Quant	Commerical receptors may be exposed to COPCs in surface soil while at the Site.
					Adult	Ingestion Dermal	Quant Quant	
				Residential Receptors	Child	Ingestion Dermal	Quant Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
					Adult	Ingestion Dermal	Quant Quant	
		Air	IOA	Commercial Receptors	Child	Inhalation	Quant Quant	Commerical receptors may be exposed to fugitive dust and volatile emissions from surface soil while at the Site.
					Adult	Inhalation	Quant Quant	
				Residential Receptors	Child	Inhalation	Quant Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
					Adult	Inhalation	Quant Quant	
	Subsurface Soil	Subsurface Soil	IOA	Commercial Receptors	Child	Ingestion Dermal	Quant Quant	Although exposure to subsurface soil by commercial receptors is considered unlikely at the Site, this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
				Residential Receptors	Child	Inhalation	Quant Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
					Adult	Inhalation	Quant Quant	
		Air	IOA	Commercial Receptors	Child	Inhalation	Quant Quant	Although exposure to subsurface soil by commercial receptors is considered unlikely at the site, this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant Quant	
				Residential Receptors	Child	Inhalation	Quant Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
					Adult	Inhalation	Quant Quant	

Notes:
COPC - Chemical of Potential Concern.
Quant - Quantitative.

TABLE 4-2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	78-93-3	2-Butanone	2.2 J	140 J	UG/KG	SB06012-NSO-120998-0	6/18	2 - 26	140	**100**	2800000 N	No	BSL
	67-64-1	Acetone	5.9 J	140 J	UG/KG	SB06004-NSO-120898-0	18/21	21 - 51	140	2200	6100000 N	No	BSL
	71-43-2	Benzene	2.2 J	2.2 J	UG/KG	SB07-305-NSO-1104020-D	1/34	0.6 - 310	2.2	NA	1100 C	No	BSL
	100-41-4	Ethylbenzene	0.8 J	0.8 J	UG/KG	B116-OSB5AA	1/34	0.5 - 310	0.8	NA	5400 C	No	BSL
	- -	m+p-Xylenes	1.3 J	6.3	UG/KG	SB07-305-NSO-1104020-D	1/10	1 - 1000	6.3	NA	59000 N[7]	No	BSL
	108-88-3	Toluene	1.1 J	6.5	UG/KG	SB07-305-NSO-1104020-D	6/34	0.7 - 940	6.5	NA	500000 N	No	BSL
	1330-20-7	Total Xylenes	1 J	6.3	UG/KG	SB07-305-NSO-1104020-D	3/34	1 - 1200	6.3	NA	63000 N	No	BSL
	VPH MADEP												
	--	C5-C8 Aliphatics	5290	48000 J	UG/KG	B116-OSB5AA	4/15	270 - 12000	48000	NA	NA	No	NTX
	--	C5-C8 Aliphatics (Weighted 0.5)	24000 J	24000 J	UG/KG	B116-OSB5AA	1/5	2900 - 5900	24000	NA	NA	No	NTX
	--	C5-C8 Aliphatics-Unadj	6030	6030	UG/KG	SB09008-NSO-121698-0	1/3	2800 - 4400	6030	NA	NA	No	NTX
	--	C9-C10 Aromatics	1060	3400	UG/KG	B8-8SB4AA	2/15	540 - 5900	3400	NA	NA	No	NTX
	--	C9-C12 Aliphatics	480 J	32000 J	UG/KG	B116-OSB5AA	4/15	27 - 22000	32000	NA	NA	No	NTX
	--	C9-C12 Aliphatics (Weighted 0.05)	1600 J	1600 J	UG/KG	B116-OSB5AA	1/5	83 - 1100	1600	NA	NA	No	NTX
	95-47-6	o-Xylene	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	69000 N	No	BSL
	1330-20-7	Total Xylenes	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	63000 N	No	BSL
	--	Volatile Petroleum Hydrocarbons	7160	21400	UG/KG	B14SB08AA	2/2	-	21400	NA	NA	No	NTX
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7.4 J	1040	UG/KG	SB09008-NSO-121698-0	15/77	2.5 - 1600	1040	NA	23000 N	No	BSL
	83-32-9	Acenaphthene	5.4 J	2800 J	UG/KG	SB06002-NSO-120898-0	19/77	2.5 - 520	2800	NA	340000 N	No	BSL
	208-96-8	Acenaphthylene	8 J	340 J	UG/KG	SB06002-NSO-120898-0	15/77	2.5 - 1600	340	**210**	340000 N[8]	No	BSL
	120-12-7	Anthracene	5.5 J	5400 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	5400	**170**	1700000 N	No	BSL
	--	**Bap Equivalent-Halfnd**	15 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	**15 C**	**Yes**	ASL
	--	**Bap Equivalent-Pos**	0.7 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	**15 C**	**Yes**	ASL
	56-55-3	**Benzo(a)anthracene**	9.3 J	12000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	12000	**810**	**150 C**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	2.6 J	11000 J	UG/KG	SB06002-NSO-120898-0	50/79	2.2 - 1800	11000	**1830**	**15 C**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7 J	17000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	17000	**770**	**150 C**	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	15 J	8200 J	UG/KG	SB06002-NSO-120898-0	39/77	2.5 - 520	8200	**310**	170000 N[9]	No	BSL
	207-08-9	**Benzo(k)fluoranthene**	12 J	9400 J	UG/KG	SB06002-NSO-120898-0	40/77	2.5 - 520	9400	**2700**	**1500 C**	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	89 J	1400 J	UG/KG	SB06002-NSO-120898-0	8/25	190 - 370	1400	46000	35000 C	No	BSL
	85-68-7	Butyl Benzyl Phthalate	93 J	150 J	UG/KG	SB06002-NSO-120898-0	3/25	39 - 2800	150	270	260000 C	No	BSL
	86-74-8	Carbazole	79 J	2200	UG/KG	SB06002-NSO-120898-0	6/25	30 - 370	2200	**130**	NA	No	NTX
	218-01-9	Chrysene	7 J	14000 J	UG/KG	SB06002-NSO-120898-0	45/77	2.5 - 520	14000	**1400**	15000 C	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	2.6 J	720 J	UG/KG	SB06002-NSO-120898-0	32/79	2.1 - 520	720	**96**	**15 C**	**Yes**	ASL
	132-64-9	Dibenzofuran	120 J	1300	UG/KG	SB06002-NSO-120898-0	6/25	36 - 2800	1300	NA	7800 N	No	BSL

TABLE 4-2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**SEMIVOLATILES (continued)**												
	84-74-2	di-n-Butyl Phthalate	36 J	36 J	UG/KG	SB11-201-NSO-0515010	1/25	190 - 2800	36	95	610000 N	No	BSL
	206-44-0	Fluoranthene	7 J	28000 J	UG/KG	SB06002-NSO-120898-0	50/77	2.5 - 520	28000	**2400**	230000 N	No	BSL
	86-73-7	Fluorene	10 J	2500 J	UG/KG	SB06002-NSO-120898-0	18/77	2.5 - 520	2500	NA	230000 N	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	6.3 J	8300 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	8300	**175**	**150 C**	**Yes**	ASL
	91-20-3	Naphthalene	7.1 J	900	UG/KG	SB06005-NSO-120898-0	13/77	2.5 - 1600	900	NA	3600 C	No	BSL
	85-01-8	Phenanthrene	11 J	18000 J	UG/KG	SB06002-NSO-120898-0	42/77	2.5 - 520	18000	**1500**	170000 N[9]	No	BSL
	108-95-2	Phenol	170 J	170 J	UG/KG	SB06008-NSO-120898-0	1/25	70 - 2800	170	**70**	1800000 N	No	BSL
	129-00-0	Pyrene	13 J	33000 J	UG/KG	SB06002-NSO-120898-0	50/77	18 - 410	33000	**1500**	170000 N	No	BSL
	PESTICIDES/PCBS												
	72-54-8	4,4'-DDD	4.7 J	53 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	53	**6.6**	2000 C	No	BSL
	72-55-9	4,4'-DDE	2.1	110 J	UG/KG	SB06002-NSO-120898-0	11/21	1.6 - 3.7	110	320	1400 C	No	BSL
	50-29-3	4,4'-DDT	3.2 J	130 J	UG/KG	SB06002-NSO-120898-0	14/21	1.6 - 3.7	130	325	1700 C	No	BSL
	309-00-2	Aldrin	2.6 J	5.1 J	UG/KG	SB06002-NSO-120898-0	3/21	0.81 - 1.8	5.1	15	29 C	No	BSL
	5103-71-9	alpha-Chlordane	3.5 J	64 J	UG/KG	SB07-305-NSO-1104020	6/20	0.81 - 1.8	64	**4.0**	1600 C[10]	No	BSL
	11096-82-5	**Aroclor-1260**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 37	12000	**106**	**220 C**	**Yes**	ASL
	60-57-1	Dieldrin	22 J	22 J	UG/KG	SB06004-NSO-120898-0	1/21	1.6 - 3.7	22	52	30 C	No	BSL
	33213-65-9	Endosulfan II	4.8 J	26 J	UG/KG	SB06002-NSO-120898-0	4/21	1.6 - 3.7	26	NA	37000 N[11]	No	BSL
	1031-07-8	Endosulfan Sulfate	4.2 J	53 J	UG/KG	SB06002-NSO-120898-0	5/21	1.6 - 3.7	53	**18**	37000 N[11]	No	BSL
	72-20-8	Endrin	4.9	4.9	UG/KG	MW11131-NSO-122198-0	1/21	1.6 - 3.7	4.9	51	1800 N	No	BSL
	7421-93-4	Endrin Aldehyde	3.8	41 J	UG/KG	SB06002-NSO-120898-0	7/20	1.6 - 3.7	41	**9.5**	1800 N[12]	No	BSL
	53494-70-5	Endrin Ketone	4.2	74 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	74	NA	1800 N[12]	No	BSL
	5103-74-2	gamma-Chlordane	2.3 J	52 J	UG/KG	SB07-305-NSO-1104020	6/21	0.81 - 1.8	52	**4.0**	1600 C[10]	No	BSL
	76-44-8	Heptachlor	0.91 J	3.5 J	UG/KG	MW11131-NSO-122198-0	2/21	0.81 - 1.8	3.5	18	110 C	No	BSL
	1024-57-3	**Heptachlor Epoxide**	2.7 J	200 J	UG/KG	SB06002-NSO-120898-0	11/21	0.81 - 1.8	200	**26**	**53 C**	**Yes**	ASL
	72-43-5	Methoxychlor	19 J	58 J	UG/KG	SB06007-NSO-120898-0	5/21	8.1 - 18	58	NA	31000 N	No	BSL
	1336-36-3	**Total Aroclors**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 42.1	12000	NA	**220 C[13]**	**Yes**	ASL
	METALS												
	7429-90-5	**Aluminum**	2600 J	13000	MG/KG	IOA-SS-EU30-0002	58/58	-	13000	**10500**	**7700 N**	**Yes**	ASL
	7440-36-0	Antimony	0.21 J	1.3	MG/KG	SB07-308-NSO-1104020	11/58	0.07 - 6.4	1.3	1.9	3.1 N	No	BSL, BKG
	7440-38-2	**Arsenic**	0.75	36	MG/KG	IOA-SS-EU49-0002	61/61	-	36	**5.3**	**0.39 C**	**Yes**	ASL
	7440-39-3	Barium	8.7 J	123	MG/KG	SB06005-NSO-120898-0	57/61	11 - 18	123	**49.9**	1500 N	No	BSL
	7440-41-7	Beryllium	0.27 J	0.8	MG/KG	SB06012-NSO-120998-0	44/58	0.22 - 0.54	0.8	**0.30**	16 N	No	BSL
	7440-43-9	Cadmium	0.028 J	4	MG/KG	SB06008-NSO-120898-0	33/61	0.04 - 0.62	4	**0.90**	7 N	No	BSL
	7440-70-2	Calcium	320	3780	MG/KG	SB06010-NSO-120998-0	55/58	140 - 440	3780	6360	NA	No	NUT, BKG
	18540-29-9	**Chromium**	5.1	149	MG/KG	SB06005-NSO-120898-0	61/61	-	149	**10.1**	**0.29 C[14]**	**Yes**	ASL

TABLE 4-2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**METALS (continued)**												
	7440-48-4	**Cobalt**	1.4	7.4	MG/KG	SB07-308-NSO-1104020	55/58	1.7 - 5.4	7.4	**4.0**	**2.3 N**	**Yes**	ASL
	7440-50-8	Copper	3.2	62.8	MG/KG	SB06002-NSO-120898-0	57/58	2.4 - 2.4	62.8	**26.2**	310 N	No	BSL
	7439-89-6	**Iron**	6100	45000	MG/KG	IOA-SS-EU49-0002	58/58	-	45000	**11300**	**5500 N**	**Yes**	ASL
	7439-92-1	**Lead**	4.6	1280	MG/KG	SB06005-NSO-120898-0	65/65	-	1280	**300**	**400**	**Yes**	ASL
	7439-95-4	Magnesium	530	4900	MG/KG	IOA-SS-EU47-0002	58/58	-	4900	**1960**	NA	No	NUT
	7439-96-5	**Manganese**	60	440 J	MG/KG	IOA-SS-EU31-0002	58/58	-	440	**310**	**180 N**	**Yes**	ASL
	7439-97-6	Mercury	0.001 J	0.15	MG/KG	IOA-SS-EU40-0002	41/60	0.011 - 0.2	0.15	0.49	2.3 N[15]	No	BSL, BKG
	7440-02-0	Nickel	3.6 J	16	MG/KG	IOA-SS-EU27-0002	57/58	4.3 - 4.3	16	17.2	150 N	No	BSL, BKG
	7440-09-7	Potassium	230	660 J	MG/KG	SB07-307-NSO-1104020	54/58	170 - 540	660	**630**	NA	No	NUT
	7782-49-2	Selenium	0.24 J	2.6 J	MG/KG	SB06-351-NSO-072503	34/61	0.18 - 11	2.6	3.0	39 N	No	BSL, BKG
	7440-22-4	Silver	0.06 J	0.39	MG/KG	IOA-SS-EU40-0002	7/59	0.06 - 1.1	0.39	NA	39 N	No	BSL
	7440-23-5	Sodium	28 J	235	MG/KG	SB06005-NSO-120898-0	43/58	38.8 - 540	235	270	NA	No	NUT, BKG
	7440-28-0	Thallium	0.21 J	0.39	MG/KG	IOA-SS-EU01-0002	3/58	0.066 - 1.5	0.39	1.8	**0.078 N**	No	BKG
	7440-62-2	Vanadium	11	45.2	MG/KG	SB06005-NSO-120898-0	58/58	-	45.2	89.1	**39 N**	No	BKG
	7440-66-6	Zinc	13	150	MG/KG	SB06005-NSO-120898-0	58/58	-	150	**73.8**	2300 N	No	BSL
	MISCELLANEOUS PARAMETERS												
	57-12-5	Cyanide	0.22	0.22	MG/KG	SB06009-NSO-120898-0	1/24	0.21 - 1.2	0.22	NA	2.2 N	No	BSL
	EPH MADEP												
	--	C11-C22 Aromatics	22000 J	736000	UG/KG	SB09008-NSO-121698-0	11/33	85 - 92000	736000	NA	NA	No	NTX
	--	C11-C22 Aromatics (Weighted 1.0)	160000 J	160000 J	UG/KG	B116-OSB1AA	1/5	14000 - 92000	160000	NA	NA	No	NTX
	--	C11-C22 Aromatics-Unadj	737000	737000	UG/KG	SB09008-NSO-121698-0	1/4	85 - 18000	737000	NA	NA	No	NTX
	--	C19-C36 Aliphatics	1250	410000 J	UG/KG	B116-OSB1AA	19/33	21 - 54000	410000	NA	NA	No	NTX
	--	C19-C36 Aliphatics (Weighted 0.005)	140 J	2100 J	UG/KG	B116-OSB1AA	4/5	27 - 30	2100	NA	NA	No	NTX
	--	C9-C18 Aliphatics	2500	190000 J	UG/KG	B116-OSB1AA	16/33	155 - 54000	190000	NA	NA	No	NTX
	--	C9-C18 Aliphatics (Weighted 0.05)	3100 J	9300 J	UG/KG	B116-OSB1AA	2/5	250 - 980	9300	NA	NA	No	NTX
	--	Extractable Petroleum Hydrocarbons	69000 J	340000 J	UG/KG	SB06002-NSO-120898-0	9/14	10000 - 34000	340000	NA	NA	No	NTX
	DIOXINS/FURANS												
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	32	4610	NG/KG	IOA-SS-EU43-0002	15/16	165.04 - 165.04	4610	**710**	15000 C	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	5.07	57	NG/KG	SB06-304-NSO-0716030	14/16	0.41 - 0.986	57	**46**	15000 C	No	BSL
	35822-46-9	1,2,3,4,6,7,8-HPCDD	1.04 J	270	NG/KG	IOA-SS-EU43-0002	13/16	1.7 - 7.36	270	**130**	450 C	No	BSL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.404 J	40	NG/KG	SB06-351-NSO-072503	15/16	0.47 - 0.47	40	49	450 C	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.35	2.27 J	NG/KG	IOA-SS-EU43-0002	6/16	0.25 - 2	2.27	7.3	450 C	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.11 J	2.23 J	NG/KG	IOA-SS-EU43-0002	11/16	0.21 - 2.4	2.23	8.4	45 C	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.51 J	5.13	NG/KG	IOA-SS-EU09-0002	14/16	0.2 - 0.247	5.13	51	45 C	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.24 J	9	NG/KG	SB06-351-NSO-072503	12/16	0.21 - 0.539	9	19	45 C	No	BSL

TABLE 4-2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**DIOXINS/FURANS (continued)**												
	57117-44-9	1,2,3,6,7,8-HXCDF	0.519 J	7.61	NG/KG	IOA-SS-EU09-0002	12/16	0.19 - 2.8	7.61	47	45 C	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.17 J	4.18	NG/KG	IOA-SS-EU43-0002	12/16	0.2 - 0.83	4.18	25	45 C	No	BSL
	72918-21-9	1,2,3,7,8,9-HXCDF	0.366 J	2.02 J	NG/KG	IOA-SS-EU09-0002	6/16	0.17 - 1.07	2.02	**0.26**	45 C	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	0.239 J	4.1 J	NG/KG	IOA-SS-EU43-0002	7/16	0.09 - 0.67	4.1	9.5	4.5 C	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.248 J	1.53 J	NG/KG	IOA-SS-EU43-0002	11/16	0.33 - 1.1	1.53	8.7	150 C	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.62 J	17.5	NG/KG	IOA-SS-EU09-0002	12/16	0.247 - 2.1	17.5	32	45 C	No	BSL
	57117-31-4	**2,3,4,7,8-PECDF**	0.142 J	24.3	NG/KG	IOA-SS-EU09-0002	14/16	0.33 - 0.62	24.3	**11**	**15 C**	**Yes**	ASL
	1746-01-6	2,3,7,8-TCDD	0.366 J	4.2	NG/KG	SB06-304-NSO-0716030	8/16	0.177 - 0.367	4.2	NA	4.5 C	No	BSL
	51207-31-9	2,3,7,8-TCDF	0.23 J	7.1	NG/KG	SB06-351-NSO-072503	6/16	0.194 - 1.15	7.1	22	45 C	No	BSL
	--	**2,3,7,8-TCDD Equivalents-Halfnd**	0.477 J	15.2 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.2	NA	**4.5 C**	**Yes**	ASL
	--	**2,3,7,8-TCDD Equivalents**	0.0141 J	15.1 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.1	NA	**4.5 C**	**Yes**	ASL
	37871-00-4	Total HPCDD	2.54 J	827	NG/KG	IOA-SS-EU43-0002	15/17	1.9 - 2.2	827	**170**	NA	No	NTX
	38998-75-3	Total HPCDF	0.563 J	96	NG/KG	SB06-351-NSO-072503	16/17	0.47 - 0.47	96	**76**	NA	No	NTX
	34465-46-8	Total HXCDD	1.33	67.4	NG/KG	IOA-SS-EU43-0002	15/17	0.493 - 0.59	67.4	110	NA	No	NTX
	55684-94-1	Total HXCDF	0.431 J	169 J	NG/KG	IOA-SS-EU09-0002	16/17	0.67 - 0.67	169	390	NA	No	NTX
	36088-22-9	Total PECDD	0.34	15.4	NG/KG	IOA-SS-EU43-0002	14/17	0.247 - 2.3	15.4	75	NA	No	NTX
	30402-15-4	Total PECDF	0.664 J	225	NG/KG	IOA-SS-EU09-0002	16/17	1.3 - 1.3	225	560	NA	No	NTX
	41903-57-5	Total TCDD	0.36 J	18	NG/KG	SB06-343-NSO-072503	14/17	0.197 - 0.32	18	42	NA	No	NTX
	55722-27-5	Total TCDF	0.922 J	97	NG/KG	SB06-343-NSO-072503	17/17	-	97	930	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth surface soil background concentrations (Stone and Webster, 2002).
5 - United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. Values correspond to a cancer risk level of 1E-06 or an adjusted hazard quotient (HQ) of 0.1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - The value is for m-xylene.
8 - The value for acenaphthene is used as a surrogate for acenaphthylene.
9 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
10 - The value is for chlordane.
11 - The value for endosulfan is used as a surrogate for endosulfan II and endosulfan sulfate.
12 - The value for endrin is used as a surrogate for endrin aldehyde and endrin ketone.
13 - The value is for polychlorinated biphenyls (high risk).
14 - The value is for hexavalent chromium.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PAH = Polycyclic aromatic hydrocarbon

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 4-2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

15 - The value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:

IOA-SS-EU01-0002	IOA-SS-EU10-0002	IOA-SS-EU21-0002	IOA-SS-EU29-0002-D	IOA-SS-EU46-0002-D
IOA-SS-EU01-0002-D	SB11-201-NSO-0515010	SB09008-NSO-121698-0	IOA-SS-EU30-0002	IOA-SS-EU47-0002
IOA-SS-EU02-0002	IOA-SS-EU12-0002	IOA-SS-EU22-0002	IOA-SS-EU31-0002	IOA-SS-EU48-0002
IOA-SS-EU03-0002	IOA-SS-EU13-0002	SB09009-NSO-121698-0	IOA-SS-EU32-0002	IOA-SS-EU49-0002
IOA-SS-EU04-0002	IOA-SS-EU14-0002	IOA-SS-EU23-0002	IOA-SS-EU32-0002-D	
B116-OSB1AA	SB07-312-NSO-1104020	SB06-343-NSO-072503	IOA-SS-EU33-0002	
B116-OSB1AA-D	IOA-SS-EU15-0002	B8-8SB2AA	IOA-SS-EU34-0002	
B116-OSB2AA	IOA-SS-EU15-0002-D	B8-8SB3AA	IOA-SS-EU35-0002	
B116-OSB3AA	SB07-305-NSO-1104025	B8-8SB4AA	IOA-SS-EU36-0002	
B116-OSB4AA	SB07-305-NSO-1104020	SB06010-NSO-120998-0	IOA-SS-EU37-0002	
B116-OSB4AA-D	SB07-305-NSO-1104020-D	SB06011-NSO-120998-0	MW06013-NSO-112498-0	
B14SB09AA	SB07-306-NSO-1104025	SB06-304-NSO-0716030	SB06008-NSO-120898-0	
IOA-SS-EU06-0002	SB07-306-NSO-1104020	B8-8SB5AA	SB06008-NSO-120898-0-D	
IOA-SS-EU07-0002	SB07-311-NSO-1104020	B8-8SB6AA	SB06009-NSO-120898-0	
SB07-339-NSO-101503	SB07-326-NSO-0716031	IOA-SS-EU27-0002	SB06-351-NSO-072503	
SB07-307-NSO-1104025	SB07-326-NSO-0716032	S1SWE	IOA-SS-EU38-0002	
SB07-307-NSO-1104020	SB07-327-NSO-0716031	S1SWN	SB06006-NSO-120898-0	
SB07-308-NSO-1104025	SB07-327-NSO-0716032	S1SWW	SB06007-NSO-120898-0	
SB07-308-NSO-1104020	SB07-328-NSO-0716030	S2SWE	SB06012-NSO-120998-0	
SB07-309-NSO-1104025	SB07-328-NSO-0716031	S2SWE-D	IOA-SS-EU39-0002	
SB07-309-NSO-1104020	SB07-329-NSO-0716030	S2SWN	SB06004-NSO-120898-0	
SB07-310-NSO-0716030	SB07-329-NSO-0716031	S2SWW	SB06005-NSO-120898-0	
SB07-310-NSO-1104020	SB07-336-NSO-101503	NAS-AOC13-SW01	SS06-020-NSO-102798	
SB07-330-NSO-0716030	SB07-337-NSO-101503	NAS-AOC13-SW01-D	SS06-020-NSO-102798-D	
SB07-330-NSO-0716031	SB07-338-NSO-101503	NAS-AOC13-SW02	IOA-SS-EU40-0002	
SB07-331-NSO-0716030	IOA-SS-EU16-0002	NAS-AOC13-SW03	IOA-SS-EU41-0002	
SB07-331-NSO-0716031	IOA-SS-EU17-0002	NAS-AOC13-SW04	IOA-SS-EU42-0002	
SB07-340-NSO-101503	MW11131-NSO-122198-0	IOA-SS-EU28-0002	IOA-SS-EU43-0002	
IOA-SS-EU09-0002	SB11-205-NSO-0515010	SB06001-NSO-120898-0	IOA-SS-EU44-0002	
B116-OSB5AA	IOA-SS-EU19-0002	SB06002-NSO-120898-0	IOA-SS-EU45-0002	
B14SB08AA	SB09007-NSO-121698-0	IOA-SS-EU29-0002	IOA-SS-EU46-0002	

TABLE 4-3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	78-93-3	2-Butanone	2.2 J	140 J	UG/KG	SB06012-NSO-120998-0	6/18	2 - 26	140	**100**	1000	No	BSL
	67-64-1	Acetone	5.9 J	140 J	UG/KG	SB06004-NSO-120898-0	18/21	21 - 51	140	2200	2400	No	BSL
	71-43-2	**Benzene**	2.2 J	2.2 J	UG/KG	SB07-305-NSO-1104020-D	1/34	0.6 - 310	2.2	NA	**0.2**	**Yes**	ASL
	100-41-4	Ethylbenzene	0.8 J	0.8 J	UG/KG	B116-OSB5AA	1/34	0.5 - 310	0.8	NA	1.5	No	BSL
	- -	m+p-Xylenes	1.3 J	6.3	UG/KG	SB07-305-NSO-1104020-D	1/10	1 - 1000	6.3	NA	190	No	BSL
	108-88-3	Toluene	1.1 J	6.5	UG/KG	SB07-305-NSO-1104020-D	6/34	0.7 - 940	6.5	NA	590	No	BSL
	1330-20-7	Total Xylenes	1 J	6.3	UG/KG	SB07-305-NSO-1104020-D	3/34	1 - 1200	6.3	NA	190	No	BSL
	VPH MADEP												
	--	C5-C8 Aliphatics	5290	48000 J	UG/KG	B116-OSB5AA	4/15	270 - 12000	48000	NA	NA	No	NTX
	--	C5-C8 Aliphatics (Weighted 0.5)	24000 J	24000 J	UG/KG	B116-OSB5AA	1/5	2900 - 5900	24000	NA	NA	No	NTX
	--	C5-C8 Aliphatics-Unadj	6030	6030	UG/KG	SB09008-NSO-121698-0	1/3	2800 - 4400	6030	NA	NA	No	NTX
	--	C9-C10 Aromatics	1060	3400	UG/KG	B8-8SB4AA	2/15	540 - 5900	3400	NA	NA	No	NTX
	--	C9-C12 Aliphatics	480 J	32000 J	UG/KG	B116-OSB5AA	4/15	27 - 22000	32000	NA	NA	No	NTX
	--	C9-C12 Aliphatics (Weighted 0.05)	1600 J	1600 J	UG/KG	B116-OSB5AA	1/5	83 - 1100	1600	NA	NA	No	NTX
	95-47-6	o-Xylene	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	190	No	BSL
	1330-20-7	Total Xylenes	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	190	No	BSL
	--	Volatile Petroleum Hydrocarbons	7160	21400	UG/KG	B14SB08AA	2/2	-	21400	NA	NA	No	NTX
	SEMIVOLATILES												
	91-57-6	**2-Methylnaphthalene**	7.4 J	1040	UG/KG	SB09008-NSO-121698-0	15/77	2.5 - 1600	1040	NA	**140**	**Yes**	ASL
	83-32-9	Acenaphthene	5.4 J	2800 J	UG/KG	SB06002-NSO-120898-0	19/77	2.5 - 520	2800	NA	4100	No	BSL
	208-96-8	Acenaphthylene	8 J	340 J	UG/KG	SB06002-NSO-120898-0	15/77	2.5 - 1600	340	**210**	4100 [7]	No	BSL
	120-12-7	Anthracene	5.5 J	5400 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	5400	**170**	42000	No	BSL
	--	Bap Equivalent-Halfnd	15 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	NA	No	NTX
	--	Bap Equivalent-Pos	0.7 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	NA	No	NTX
	56-55-3	**Benzo(a)anthracene**	9.3 J	12000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	12000	**810**	**10**	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	2.6 J	11000 J	UG/KG	SB06002-NSO-120898-0	50/79	2.2 - 1800	11000	**1830**	**3.5**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7 J	17000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	17000	**770**	**35**	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	15 J	8200 J	UG/KG	SB06002-NSO-120898-0	39/77	2.5 - 520	8200	**310**	9500 [8]	No	BSL
	207-08-9	**Benzo(k)fluoranthene**	12 J	9400 J	UG/KG	SB06002-NSO-120898-0	40/77	2.5 - 520	9400	**2700**	**350**	**Yes**	ASL
	117-81-7	**Bis(2-ethylhexyl)phthalate**	89 J	1400 J	UG/KG	SB06002-NSO-120898-0	8/25	190 - 370	1400	46000	**1100**	**Yes**	ASL
	85-68-7	Butyl Benzyl Phthalate	93 J	150 J	UG/KG	SB06002-NSO-120898-0	3/25	39 - 2800	150	270	200	No	BSL
	86-74-8	Carbazole	79 J	2200	UG/KG	SB06002-NSO-120898-0	6/25	30 - 370	2200	**130**	NA	No	NTX
	218-01-9	**Chrysene**	7 J	14000 J	UG/KG	SB06002-NSO-120898-0	45/77	2.5 - 520	14000	**1400**	**1100**	**Yes**	ASL
	53-70-3	**Dibenzo(a,h)anthracene**	2.6 J	720 J	UG/KG	SB06002-NSO-120898-0	32/79	2.1 - 520	720	**96**	**11**	**Yes**	ASL
	132-64-9	**Dibenzofuran**	120 J	1300	UG/KG	SB06002-NSO-120898-0	6/25	36 - 2800	1300	NA	**110**	**Yes**	ASL
	84-74-2	di-n-Butyl Phthalate	36 J	36 J	UG/KG	SB11-201-NSO-0515010	1/25	190 - 2800	36	95	1700	No	BSL
	206-44-0	Fluoranthene	7 J	28000 J	UG/KG	SB06002-NSO-120898-0	50/77	2.5 - 520	28000	**2400**	70000	No	BSL
	86-73-7	Fluorene	10 J	2500 J	UG/KG	SB06002-NSO-120898-0	18/77	2.5 - 520	2500	NA	4000	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	6.3 J	8300 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	8300	**175**	**200**	**Yes**	ASL
	91-20-3	**Naphthalene**	7.1 J	900	UG/KG	SB06005-NSO-120898-0	13/77	2.5 - 1600	900	NA	**0.47**	**Yes**	ASL
	85-01-8	**Phenanthrene**	11 J	18000 J	UG/KG	SB06002-NSO-120898-0	42/77	2.5 - 520	18000	**1500**	**9500** [8]	**Yes**	ASL
	108-95-2	Phenol	170 J	170 J	UG/KG	SB06008-NSO-120898-0	1/25	70 - 2800	170	**70**	2600	No	BSL
	129-00-0	**Pyrene**	13 J	33000 J	UG/KG	SB06002-NSO-120898-0	50/77	18 - 410	33000	**1500**	**9500**	**Yes**	ASL

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FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**PESTICIDES/PCBS**												
	72-54-8	**4,4'-DDD**	4.7 J	53 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	53	**6.6**	**6.4**	**Yes**	ASL
	72-55-9	**4,4'-DDE**	2.1	110 J	UG/KG	SB06002-NSO-120898-0	11/21	1.6 - 3.7	110	320	**46**	**Yes**	ASL
	50-29-3	**4,4'-DDT**	3.2 J	130 J	UG/KG	SB06002-NSO-120898-0	14/21	1.6 - 3.7	130	325	**67**	**Yes**	ASL
	309-00-2	**Aldrin**	2.6 J	5.1 J	UG/KG	SB06002-NSO-120898-0	3/21	0.81 - 1.8	5.1	15	**0.65**	**Yes**	ASL
	5103-71-9	**alpha-Chlordane**	3.5 J	64 J	UG/KG	SB07-305-NSO-1104020	6/20	0.81 - 1.8	64	**4.0**	**13** [9]	**Yes**	ASL
	11096-82-5	**Aroclor-1260**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 37	12000	**106**	**24**	**Yes**	ASL
	60-57-1	**Dieldrin**	22 J	22 J	UG/KG	SB06004-NSO-120898-0	1/21	1.6 - 3.7	22	52	**0.061**	**Yes**	ASL
	33213-65-9	Endosulfan II	4.8 J	26 J	UG/KG	SB06002-NSO-120898-0	4/21	1.6 - 3.7	26	NA	1100 [10]	No	BSL
	1031-07-8	Endosulfan Sulfate	4.2 J	53 J	UG/KG	SB06002-NSO-120898-0	5/21	1.6 - 3.7	53	**18**	1100 [10]	No	BSL
	72-20-8	Endrin	4.9	4.9	UG/KG	MW11131-NSO-122198-0	1/21	1.6 - 3.7	4.9	51	68	No	BSL
	7421-93-4	Endrin Aldehyde	3.8	41 J	UG/KG	SB06002-NSO-120898-0	7/20	1.6 - 3.7	41	**9.5**	68 [11]	No	BSL
	53494-70-5	**Endrin Ketone**	4.2	74 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	74	NA	**68** [11]	**Yes**	ASL
	5103-74-2	**gamma-Chlordane**	2.3 J	52 J	UG/KG	SB07-305-NSO-1104020	6/21	0.81 - 1.8	52	**4.0**	**13** [9]	**Yes**	ASL
	76-44-8	**Heptachlor**	0.91 J	3.5 J	UG/KG	MW11131-NSO-122198-0	2/21	0.81 - 1.8	3.5	18	**0.14**	**Yes**	ASL
	1024-57-3	**Heptachlor Epoxide**	2.7 J	200 J	UG/KG	SB06002-NSO-120898-0	11/21	0.81 - 1.8	200	**26**	**0.068**	**Yes**	ASL
	72-43-5	Methoxychlor	19 J	58 J	UG/KG	SB06007-NSO-120898-0	5/21	8.1 - 18	58	NA	1500	No	BSL
	--	**Total Aroclors**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 42.1	12000	NA	**26** [12]	**Yes**	ASL
	METALS												
	7429-90-5	Aluminum	2600 J	13000	MG/KG	IOA-SS-EU30-0002	58/58	-	13000	**10500**	23000	No	BSL
	7440-36-0	Antimony	0.21 J	1.3	MG/KG	SB07-308-NSO-1104020	11/58	0.07 - 6.4	1.3	1.9	**0.27**	No	BKG
	7440-38-2	**Arsenic**	0.75	36	MG/KG	IOA-SS-EU49-0002	61/61	-	36	**5.3**	**0.0013**	**Yes**	ASL
	7440-39-3	**Barium**	8.7 J	123	MG/KG	SB06005-NSO-120898-0	57/61	11 - 18	123	**49.9**	**120**	**Yes**	ASL
	7440-41-7	Beryllium	0.27 J	0.8	MG/KG	SB06012-NSO-120998-0	44/58	0.22 - 0.54	0.8	**0.30**	13	No	BSL
	7440-43-9	**Cadmium**	0.028 J	4	MG/KG	SB06008-NSO-120898-0	33/61	0.04 - 0.62	4	**0.90**	**0.52**	**Yes**	ASL
	7440-70-2	Calcium	320	3780	MG/KG	SB06010-NSO-120998-0	55/58	140 - 440	3780	6360	NA	No	NUT, BKG
	18540-29-9	**Chromium**	5.1	149	MG/KG	SB06005-NSO-120898-0	61/61	-	149	**10.1**	**0.00059** [13]	**Yes**	ASL
	7440-48-4	**Cobalt**	1.4	7.4	MG/KG	SB07-308-NSO-1104020	55/58	1.7 - 5.4	7.4	**4.0**	**0.21**	**Yes**	ASL
	7440-50-8	**Copper**	3.2	62.8	MG/KG	SB06002-NSO-120898-0	57/58	2.4 - 2.4	62.8	**26.2**	**22**	**Yes**	ASL
	7439-89-6	**Iron**	6100	45000	MG/KG	IOA-SS-EU49-0002	58/58	-	45000	**11300**	**270**	**Yes**	ASL
	7439-92-1	**Lead**	4.6	1280	MG/KG	SB06005-NSO-120898-0	65/65	-	1280	**300**	**14** [14]	**Yes**	ASL
	7439-95-4	Magnesium	530	4900	MG/KG	IOA-SS-EU47-0002	58/58	-	4900	**1960**	NA	No	NUT
	7439-96-5	**Manganese**	60	440 J	MG/KG	IOA-SS-EU31-0002	58/58	-	440	**310**	**21**	**Yes**	ASL
	7439-97-6	Mercury	0.001 J	0.15	MG/KG	IOA-SS-EU40-0002	41/60	0.011 - 0.2	0.15	0.49	**0.033**	No	BKG
	7440-02-0	Nickel	3.6 J	16	MG/KG	IOA-SS-EU27-0002	57/58	4.3 - 4.3	16	17.2	20	No	BSL, BKG
	7440-09-7	Potassium	230	660 J	MG/KG	SB07-307-NSO-1104020	54/58	170 - 540	660	**630**	NA	No	NUT
	7782-49-2	Selenium	0.24 J	2.6 J	MG/KG	SB06-351-NSO-072503	34/61	0.18 - 11	2.6	3.0	**0.4**	No	BKG
	7440-22-4	Silver	0.06 J	0.39	MG/KG	IOA-SS-EU40-0002	7/59	0.06 - 1.1	0.39	NA	0.6	No	BSL
	7440-23-5	Sodium	28 J	235	MG/KG	SB06005-NSO-120898-0	43/58	38.8 - 540	235	270	NA	No	NUT, BKG
	7440-28-0	Thallium	0.21 J	0.39	MG/KG	IOA-SS-EU01-0002	3/58	0.066 - 1.5	0.39	1.8	**0.011**	No	BKG
	7440-62-2	Vanadium	11	45.2	MG/KG	SB06005-NSO-120898-0	58/58	-	45.2	89.1	78	No	BSL, BKG
	7440-66-6	Zinc	13	150	MG/KG	SB06005-NSO-120898-0	58/58	-	150	**73.8**	290	No	BSL
	MISCELLANEOUS PARAMETERS												
	57-12-5	**Cyanide**	0.22	0.22	MG/KG	SB06009-NSO-120898-0	1/24	0.21 - 1.2	0.22	NA	**0.014**	**Yes**	ASL

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Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**EPH MADEP**												
	--	C11-C22 Aromatics	22000 J	736000	UG/KG	SB09008-NSO-121698-0	11/33	85 - 92000	736000	NA	NA	No	NTX
	--	C11-C22 Aromatics (Weighted 1.0)	160000 J	160000 J	UG/KG	B116-OSB1AA	1/5	14000 - 92000	160000	NA	NA	No	NTX
	--	C11-C22 Aromatics-Unadj	737000	737000	UG/KG	SB09008-NSO-121698-0	1/4	85 - 18000	737000	NA	NA	No	NTX
	--	C19-C36 Aliphatics	1250	410000 J	UG/KG	B116-OSB1AA	19/33	21 - 54000	410000	NA	NA	No	NTX
	--	C19-C36 Aliphatics (Weighted 0.005)	140 J	2100 J	UG/KG	B116-OSB1AA	4/5	27 - 30	2100	NA	NA	No	NTX
	--	C9-C18 Aliphatics	2500	190000 J	UG/KG	B116-OSB1AA	16/33	155 - 54000	190000	NA	NA	No	NTX
	--	C9-C18 Aliphatics (Weighted 0.05)	3100 J	9300 J	UG/KG	B116-OSB1AA	2/5	250 - 980	9300	NA	NA	No	NTX
	--	Extractable Petroleum Hydrocarbons	69000 J	340000 J	UG/KG	SB06002-NSO-120898-0	9/14	10000 - 34000	340000	NA	NA	No	NTX
	DIOXINS/FURANS												
	3268-87-9	**1,2,3,4,6,7,8,9-OCDD**	32	4610	NG/KG	IOA-SS-EU43-0002	15/16	165.04 - 165.04	4610	**710**	**870**	**Yes**	ASL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	5.07	57	NG/KG	SB06-304-NSO-0716030	14/16	0.41 - 0.986	57	**46**	870	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	1.04 J	270	NG/KG	IOA-SS-EU43-0002	13/16	1.7 - 7.36	270	**130**	**26**	**Yes**	ASL
	67562-39-4	**1,2,3,4,6,7,8-HPCDF**	0.404 J	40	NG/KG	SB06-351-NSO-072503	15/16	0.47 - 0.47	40	49	**26**	**Yes**	ASL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.35	2.27 J	NG/KG	IOA-SS-EU43-0002	6/16	0.25 - 2	2.27	7.3	26	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.11 J	2.23 J	NG/KG	IOA-SS-EU43-0002	11/16	0.21 - 2.4	2.23	8.4	2.6	No	BSL
	70648-26-9	**1,2,3,4,7,8-HXCDF**	0.51 J	5.13	NG/KG	IOA-SS-EU09-0002	14/16	0.2 - 0.247	5.13	51	**2.6**	**Yes**	ASL
	57653-85-7	**1,2,3,6,7,8-HXCDD**	0.24 J	9	NG/KG	SB06-351-NSO-072503	12/16	0.21 - 0.539	9	19	**2.6**	**Yes**	ASL
	57117-44-9	**1,2,3,6,7,8-HXCDF**	0.519 J	7.61	NG/KG	IOA-SS-EU09-0002	12/16	0.19 - 2.8	7.61	47	**2.6**	**Yes**	ASL
	19408-74-3	**1,2,3,7,8,9-HXCDD**	0.17 J	4.18	NG/KG	IOA-SS-EU43-0002	12/16	0.2 - 0.83	4.18	25	**2.6**	**Yes**	ASL
	72918-21-9	1,2,3,7,8,9-HXCDF	0.366 J	2.02 J	NG/KG	IOA-SS-EU09-0002	6/16	0.17 - 1.07	2.02	**0.26**	2.6	No	BSL
	40321-76-4	**1,2,3,7,8-PECDD**	0.239 J	4.1 J	NG/KG	IOA-SS-EU43-0002	7/16	0.09 - 0.67	4.1	9.5	**0.26**	**Yes**	ASL
	57117-41-6	1,2,3,7,8-PECDF	0.248 J	1.53 J	NG/KG	IOA-SS-EU43-0002	11/16	0.33 - 1.1	1.53	8.7	8.7	No	BSL
	60851-34-5	**2,3,4,6,7,8-HXCDF**	0.62 J	17.5	NG/KG	IOA-SS-EU09-0002	12/16	0.247 - 2.1	17.5	32	**2.6**	**Yes**	ASL
	57117-31-4	**2,3,4,7,8-PECDF**	0.142 J	24.3	NG/KG	IOA-SS-EU09-0002	14/16	0.33 - 0.62	24.3	**11**	**0.87**	**Yes**	ASL
	1746-01-6	**2,3,7,8-TCDD**	0.366 J	4.2	NG/KG	SB06-304-NSO-0716030	8/16	0.177 - 0.367	4.2	NA	**0.26**	**Yes**	ASL
	51207-31-9	**2,3,7,8-TCDF**	0.23 J	7.1	NG/KG	SB06-351-NSO-072503	6/16	0.194 - 1.15	7.1	22	**2.6**	**Yes**	ASL
	--	2,3,7,8-TCDD Equivalents-Halfnd	0.477 J	15.2 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.2	NA	NA	No	NTX
	--	2,3,7,8-TCDD Equivalents	0.0141	15.1 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.1	NA	NA	No	NTX
	37871-00-4	Total HPCDD	2.54 J	827	NG/KG	IOA-SS-EU43-0002	15/17	1.9 - 2.2	827	**170**	NA	No	NTX
	38998-75-3	Total HPCDF	0.563 J	96	NG/KG	SB06-351-NSO-072503	16/17	0.47 - 0.47	96	**76**	NA	No	NTX
	34465-46-8	Total HXCDD	1.33	67.4	NG/KG	IOA-SS-EU43-0002	15/17	0.493 - 0.59	67.4	110	NA	No	NTX
	55684-94-1	Total HXCDF	0.431 J	169 J	NG/KG	IOA-SS-EU09-0002	16/17	0.67 - 0.67	169	390	NA	No	NTX
	36088-22-9	Total PECDD	0.34	15.4	NG/KG	IOA-SS-EU43-0002	14/17	0.247 - 2.3	15.4	75	NA	No	NTX
	30402-15-4	Total PECDF	0.664 J	225	NG/KG	IOA-SS-EU09-0002	16/17	1.3 - 1.3	225	560	NA	No	NTX
	41903-57-5	Total TCDD	0.36 J	18	NG/KG	SB06-343-NSO-072503	14/17	0.197 - 0.32	18	42	NA	No	NTX
	55722-27-5	Total TCDF	0.922 J	97	NG/KG	SB06-343-NSO-072503	17/17	-	97	930	NA	No	NTX

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Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth surface soil background concentrations (Stone and Webster, 2002).
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites,
November 2012. Soil screening levels (SSLs) for groundwater protection are risk-based SSLs and are based on a dilution attenuation factor (DAF) of 1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level
and, for PAHs and metals, is greater than the background value.
7 - The value for acenaphthene is used as a surrogate for acenaphthylene.
8 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
9 - The value is for chlordane.
10 - The value for endosulfan is used as a surrogate for endosulfan II and endosulfan sulfate.
11 - The value for endrin is used as a surrogate for endrin aldehyde and endrin ketone.
12 - The value is for polychlorinated biphenyls (low risk).
13 - The value is for hexavalent chromium.
14 - The Maximum Contaminant Level (MCL)-based SSL is presented.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above screening level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 4-3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Associated Samples:													
IOA-SS-EU01-0002		IOA-SS-EU10-0002		IOA-SS-EU21-0002		IOA-SS-EU29-0002-D		IOA-SS-EU46-0002-D					
IOA-SS-EU01-0002-D		SB11-201-NSO-0515010		SB09008-NSO-121698-0		IOA-SS-EU30-0002		IOA-SS-EU47-0002					
IOA-SS-EU02-0002		IOA-SS-EU12-0002		IOA-SS-EU22-0002		IOA-SS-EU31-0002		IOA-SS-EU48-0002					
IOA-SS-EU03-0002		IOA-SS-EU13-0002		SB09009-NSO-121698-0		IOA-SS-EU32-0002		IOA-SS-EU49-0002					
IOA-SS-EU04-0002		IOA-SS-EU14-0002		IOA-SS-EU23-0002		IOA-SS-EU32-0002-D							
B116-OSB1AA		SB07-312-NSO-1104020		SB06-343-NSO-072503		IOA-SS-EU33-0002							
B116-OSB1AA-D		IOA-SS-EU15-0002		B8-8SB2AA		IOA-SS-EU34-0002							
B116-OSB2AA		IOA-SS-EU15-0002-D		B8-8SB3AA		IOA-SS-EU35-0002							
B116-OSB3AA		SB07-305-NSO-1104025		B8-8SB4AA		IOA-SS-EU36-0002							
B116-OSB4AA		SB07-305-NSO-1104020		SB06010-NSO-120998-0		IOA-SS-EU37-0002							
B116-OSB4AA-D		SB07-305-NSO-1104020-D		SB06011-NSO-120998-0		MW06013-NSO-112498-0							
B14SB09AA		SB07-306-NSO-1104025		SB06-304-NSO-0716030		SB06008-NSO-120898-0							
IOA-SS-EU06-0002		SB07-306-NSO-1104020		B8-8SB5AA		SB06008-NSO-120898-0-D							
IOA-SS-EU07-0002		SB07-311-NSO-1104020		B8-8SB6AA		SB06009-NSO-120898-0							
SB07-339-NSO-101503		SB07-326-NSO-0716031		IOA-SS-EU27-0002		SB06-351-NSO-072503							
SB07-307-NSO-1104025		SB07-326-NSO-0716032		S1SWE		IOA-SS-EU38-0002							
SB07-307-NSO-1104020		SB07-327-NSO-0716031		S1SWN		SB06006-NSO-120898-0							
SB07-308-NSO-1104025		SB07-327-NSO-0716032		S1SWW		SB06007-NSO-120898-0							
SB07-308-NSO-1104020		SB07-328-NSO-0716030		S2SWE		SB06012-NSO-120998-0							
SB07-309-NSO-1104025		SB07-328-NSO-0716031		S2SWE-D		IOA-SS-EU39-0002							
SB07-309-NSO-1104020		SB07-329-NSO-0716030		S2SWN		SB06004-NSO-120898-0							
SB07-310-NSO-0716030		SB07-329-NSO-0716031		S2SWW		SB06005-NSO-120898-0							
SB07-310-NSO-1104020		SB07-336-NSO-101503		NAS-AOC13-SW01		SS06-020-NSO-102798							
SB07-330-NSO-0716030		SB07-337-NSO-101503		NAS-AOC13-SW01-D		SS06-020-NSO-102798-D							
SB07-330-NSO-0716031		SB07-338-NSO-101503		NAS-AOC13-SW02		IOA-SS-EU40-0002							
SB07-331-NSO-0716030		IOA-SS-EU16-0002		NAS-AOC13-SW03		IOA-SS-EU41-0002							
SB07-331-NSO-0716031		IOA-SS-EU17-0002		NAS-AOC13-SW04		IOA-SS-EU42-0002							
SB07-340-NSO-101503		MW11131-NSO-122198-0		IOA-SS-EU28-0002		IOA-SS-EU43-0002							
IOA-SS-EU09-0002		SB11-205-NSO-0515010		SB06001-NSO-120898-0		IOA-SS-EU44-0002							
B116-OSB5AA		IOA-SS-EU19-0002		SB06002-NSO-120898-0		IOA-SS-EU45-0002							
B14SB08AA		SB09007-NSO-121698-0		IOA-SS-EU29-0002		IOA-SS-EU46-0002							

TABLE 4-4
SUMMARY OF REFINED MIGRATION TO GROUNDWATER EVALUATION - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Less than SSL at a DAF of 20[1]	Not a Groundwater COPC[2]	Less than Primary MCL[3]	Retain Chemical for Further Analysis?[4]	Rationale
Volatiles					
Benzene	X		X	No	Not evaluated further as discussed in Section 4.1.3.
Semivolatiles					
2-Methylnaphthalene	X			No	Not evaluated further as discussed in Section 4.1.3.
Benzo(a)anthracene				No	Relatively low FOD (3/44) in groundwater; BAP equivalents in groundwater are less than the MCL for benzo(a)pyrene.
Benzo(a)pyrene			X	No	Not further evaluated for reasons shown.
Benzo(b)fluoranthene				No	Low FOD (1/44) in groundwater; BAP equivalents in groundwater are less than the MCL for benzo(a)pyrene.
Benzo(k)fluoranthene		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Bis(2-ethylhexyl)phthalate		X		No	Not evaluated further as discussed in Section 4.1.3.
Chrysene	X	X		No	Not evaluated further as discussed in Section 4.1.3.
Dibenzo(a,h)anthracene		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Dibenzofuran	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Indeno(1,2,3-cd)pyrene		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Naphthalene				**Yes**	Several detections of naphthalene in surface soil exceed the SSL based on a DAF of 20 by more than one order of magnitude; several detections of napthalene in groundwater exceed the RSL by more than one order of magnitude.
Phenanthrene	X	X		No	Not evaluated further as discussed in Section 4.1.3.
Pyrene	X	X		No	Not evaluated further as discussed in Section 4.1.3.

TABLE 4-4
SUMMARY OF REFINED MIGRATION TO GROUNDWATER EVALUATION - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Less than SSL at a DAF of 20[1]	Not a Groundwater COPC[2]	Less than Primary MCL[3]	Retain Chemical for Further Analysis?[4]	Rationale
Pesticides/PCBs					
4,4-DDD	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
4,4'-DDE	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
4,4'-DDT	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Aldrin		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
alpha-Chlordane		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Aroclor-1260		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Dieldrin		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Endrin Ketone	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
gamma-Chlordane		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Heptachlor		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Heptachlor Epoxide		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Total Aroclors		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Metals					
Arsenic			X	No	Not evaluated further as discussed in Section 4.1.3.
Barium	X		X	No	Not evaluated further as discussed in Section 4.1.3.
Cadmium	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Chromium		X		No	Not evaluated further as discussed in Section 4.1.3.
Cobalt		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Copper	X		X	No	Not evaluated further as discussed in Section 4.1.3.
Iron		X		No	Not evaluated further as discussed in Section 4.1.3.
Lead				**Yes**	Although lead concentrations exceed the SSL at a DAF of 20 in only 3 of 65 samples (< 5%), the maximum lead concentration exceeds twice the SSL at a DAF of 20 and is therefore considered a "hot spot."
Manganese		X		No	Not evaluated further as discussed in Section 4.1.3.

TABLE 4-4
SUMMARY OF REFINED MIGRATION TO GROUNDWATER EVALUATION - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Less than SSL at a DAF of 20[(1)]	Not a Groundwater COPC[(2)]	Less than Primary MCL[(3)]	Retain Chemical for Further Analysis?[(4)]	Rationale
Miscellaneous Parameters					
Cyanide		X (ND)		No	Not evaluated further as discussed in Section 4.1.3..
Dioxins/Furans					
1,2,3,4,6,7,8,9-OCDD	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,4,6,7,8-HPCDD	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,4,6,7,8-HPCDF	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,4,7,8-HXCDF	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,6,7,8-HXCDD	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,6,7,8-HXCDF	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,7,8,9-HXCDD	X			No	Not evaluated further as discussed in Section 4.1.3.
1,2,3,7,8-PECDD	X			No	Not evaluated further as discussed in Section 4.1.3.
2,3,4,6,7,8-HXCDF	X			No	Not evaluated further as discussed in Section 4.1.3.
2,3,4,7,8-PECDF				No	Only 1 of 16 samples exceeds the SSL at a DAF of 20; the maximum concentration is less than the MCL-based SSL.
2,3,7,8-TCDD	X			No	Not evaluated further as discussed in Section 4.1.3.
2,3,7,8-TCDF	X			No	Not evaluated further as discussed in Section 4.1.3.

TABLE 4-4
SUMMARY OF REFINED MIGRATION TO GROUNDWATER EVALUATION - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Less than SSL at a DAF of 20[(1)]	Not a Groundwater COPC[(2)]	Less than Primary MCL[(3)]	Retain Chemical for Further Analysis?[(4)]	Rationale

1 - The maximum concentration detected in surface soil does not exceed the risk-based SSL at a DAF of 20 (i.e., 20 times the SSL at a DAF of 1 presented in Table 4-3).
2 - The maximum detected concentration in groundwater does not exceed applicable tap water screening criteria (e.g., criteria based on the USEPA RSL, the MCL) and/or background (for metals and PAHs) (see Appendix C.4).
3 - Although the maximum detected concentration in groundwater exceeds the screening level based on the tap water RSL and/or background, concentrations do not exceed the MCL (see Appendix C.4).
4 - This determination considers the comparisons of soil concentrations to SSLs at a DAF of 20 and groundwater concentrations to screening criteria as shown in this table as well as frequency of soil and groundwater detections exceeding criteria and comparisons to MCL-based SSLs. See Section 4.1.3 for explanation of the lines of evidence used in the refined migration to groundwater evaluation.

BAP equivalents = Benzo(a)pyrene equivalents.
COPC = Chemical of potential concern.
DAF = Dilution attenuation factor.
FOD = Frequency of detection.
MCL = Maximum Contaminant Level.
ND = Not detected.
RSL = Regional Screening Level.
SSL = Soil Screening Level.
X = Indicates the line of evidence is true for the chemical.

TABLE 4-5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	71-55-6	1,1,1-Trichloroethane	4 J	4 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	4	NA	870000 N	No	BSL
	75-34-3	1,1-Dichloroethane	3 J	3 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	3	NA	3300 C	No	BSL
	79-01-6	Trichloroethene	7 J	7 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	7	NA	440 N[7]	No	BSL
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7 J	33 J	UG/KG	IOA-SO-RIA33-SB10-0305	3/9	17 - 20	33	NA	23000 N	No	BSL
	83-32-9	Acenaphthene	19 J	73 J	UG/KG	IOA-SO-RIA33-SB02-0507	2/9	17 - 20	73	NA	340000 N	No	BSL
	208-96-8	Acenaphthylene	11 J	55 J	UG/KG	IOA-SO-RIA33-SB02-0507	2/9	17 - 20	55	NA	340000 N[8]	No	BSL
	120-12-7	Anthracene	29 J	150 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	150	NA	1700000 N	No	BSL
	--	**Bap Equivalent-Halfnd**	30.6 J	584 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	584	NA	**15 C**	**Yes**	ASL
	--	**Bap Equivalent-Pos**	11.8 J	584 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	584	NA	**15 C**	**Yes**	ASL
	56-55-3	Benzo(a)anthracene	15 J	520 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	520	600	**150 C**	No	BKG
	50-32-8	**Benzo(a)pyrene**	9 J	380 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	380	**16**	**15 C**	**Yes**	ASL
	205-99-2	Benzo(b)fluoranthene	13 J	650 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	650	810	**150 C**	No	BKG
	191-24-2	Benzo(g,h,i)perylene	47 J	230 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	230	330	170000 N[9]	No	BSL, BKG
	207-08-9	Benzo(k)fluoranthene	52 J	250 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	10 - 20	250	320	1500 C	No	BSL, BKG
	218-01-9	Chrysene	13 J	550 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	550	710	15000 C	No	BSL, BKG
	53-70-3	**Dibenzo(a,h)anthracene**	64 J	64 J	UG/KG	IOA-SO-RIA33-SB02-0507	1/9	26 - 40	64	**1.7**	**15 C**	**Yes**	ASL
	206-44-0	Fluoranthene	24 J	870 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	870	1100	230000 N	No	BSL, BKG
	86-73-7	Fluorene	11 J	89 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	89	NA	230000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	40 J	200 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	34 - 40	200	390	**150 C**	No	BKG
	91-20-3	Naphthalene	11 J	33 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	33	NA	3600 C	No	BSL
	85-01-8	Phenanthrene	11 J	610 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	610	**360**	170000 N[9]	No	BSL
	129-00-0	Pyrene	20 J	910 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	910	1000	170000 N	No	BSL, BKG
	METALS												
	7429-90-5	Aluminum	3600	7900	MG/KG	IOA-SO-RIA33-SB14-0507	9/9	-	7900	8520	**7700 N**	No	BKG
	7440-36-0	Antimony	0.3	0.53	MG/KG	IOA-SO-RIA33-SB14-0507	2/9	0.056 - 0.13	0.53	3.65	3.1 N	No	BSL, BKG
	7440-38-2	**Arsenic**	0.13 J	2.3	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	2.3	**1.9**	**0.39 C**	**Yes**	ASL
	7440-39-3	Barium	7.8	17	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	17	27.0	1500 N	No	BSL, BKG
	7440-41-7	Beryllium	0.26 J	0.54	MG/KG	IOA-SO-RIA33-SB08-0305	7/9	0.17 - 0.26	0.54	**0.44**	16 N	No	BSL
	7440-43-9	Cadmium	0.14	0.28	MG/KG	IOA-SO-RIA33-SB10-0305	7/9	0.083 - 0.11	0.28	**0.115**	7 N	No	BSL
	7440-70-2	Calcium	820	1700	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	1700	**1550**	NA	No	NUT
	18540-29-9	**Chromium**	4.7	11	MG/KG	IOA-SO-RIA33-SB04-0305	9/9	-	11	**10.2**	**0.29 C[10]**	**Yes**	ASL
	7440-48-4	**Cobalt**	1.9	6.8	MG/KG	IOA-SO-RIA33-SB14-0507	9/9	-	6.8	**4.7**	**2.3 N**	**Yes**	ASL
	7440-50-8	Copper	3.6	12	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	12	14.2	310 N	No	BSL, BKG
	7439-89-6	**Iron**	4900	18000	MG/KG	IOA-SO-RIA33-SB08-0305	9/9	-	18000	**11,400**	**5500 N**	**Yes**	ASL

TABLE 4-5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**METALS (continued)**												
	7439-92-1	Lead	2.6	20	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	20	**9.3**	400	No	BSL
	7439-95-4	Magnesium	1100	2400	MG/KG	IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB14-0507	9/9	-	2400	**2250**	NA	No	NUT
	7439-96-5	Manganese	65 J	320 J	MG/KG	IOA-SO-RIA33-SB14-0507, IOA-SO-RIA33-SB14-0507-D	9/9	-	320	413	**180 N**	No	BKG
	7439-97-6	Mercury	0.002 J	0.018 J	MG/KG	IOA-SO-RIA33-SB02-0507	5/9	0.01 - 0.013	0.018	0.11	2.3 N[11]	No	BSL, BKG
	7440-02-0	Nickel	3.8	8.9	MG/KG	IOA-SO-RIA33-SB10-0305, IOA-SO-RIA33-SB14-0507	9/9	-	8.9	**6.5**	150 N	No	BSL
	7440-09-7	Potassium	250 J	440 J	MG/KG	IOA-SO-RIA33-SB04-0305	9/9	-	440	457	NA	No	NUT, BKG
	7440-23-5	Sodium	36 J	58 J	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	58	144	NA	No	NUT, BKG
	7440-28-0	Thallium	0.09 J	0.09 J	MG/KG	IOA-SO-RIA33-SB10-0305	1/9	0.065 - 0.091	0.09	0.22	**0.078 N**	No	BKG
	7440-62-2	Vanadium	8.5	20	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	20	**17.1**	39 N	No	BSL
	7440-66-6	Zinc	17	42	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	42	**28.7**	2300 N	No	BSL

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth subsurface soil background concentrations (Stone and Webster, 2002).
5 - United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. Values correspond to a cancer risk level of 1E-06 or an adjusted hazard quotient (HQ) of 0.1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - One-tenth the noncarcinogenic level is less than the carcinogenic level; therefore, the noncarcinogenic screening level is presented.
8 - The value for acenaphthene is used as a surrogate for acenaphthylene.
9 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
10 - The value is for hexavalent chromium.
11 - The value is for mercuric chloride (and other mercury salts).

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:

IOA-SO-RIA33-SB02-0507
IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305
IOA-SO-RIA33-SB10-0305
IOA-SO-RIA33-SB14-0507
IOA-SO-RIA33-SB14-0507-D
IOA-SO-RIA82-01A-0608
IOA-SO-RIA82-02A-0608
IOA-SO-RIA82-03A-0608
IOA-SO-RIA82-04A-0608

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PAH = Polycyclic aromatic hydrocarbon

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 4-6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	71-55-6	1,1,1-Trichloroethane	4 J	4 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	4	NA	2600	No	BSL
	75-34-3	**1,1-Dichloroethane**	3 J	3 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	3	NA	**0.68**	**Yes**	ASL
	79-01-6	**Trichloroethene**	7 J	7 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	7	NA	**0.16**	**Yes**	ASL
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7 J	33 J	UG/KG	IOA-RIA33-SB10	3/9	17 - 20	33	NA	140	No	BSL
	83-32-9	Acenaphthene	19 J	73 J	UG/KG	IOA-RIA33-SB02	2/9	17 - 20	73	NA	4100	No	BSL
	208-96-8	Acenaphthylene	11 J	55 J	UG/KG	IOA-RIA33-SB02	2/9	17 - 20	55	NA	4100 [7]	No	BSL
	120-12-7	Anthracene	29 J	150 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	150	NA	42000	No	BSL
	--	Bap Equivalent-Halfnd	30.6 J	584 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	584	NA	NA	No	BSL
	--	Bap Equivalent-Pos	11.8 J	584 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	584	NA	NA	No	BSL
	56-55-3	Benzo(a)anthracene	15 J	520 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	520	600	**10**	No	BKG
	50-32-8	**Benzo(a)pyrene**	9 J	380 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	380	**16**	**3.5**	**Yes**	ASL
	205-99-2	Benzo(b)fluoranthene	13 J	650 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	650	810	**35**	No	BKG
	191-24-2	Benzo(g,h,i)perylene	47 J	230 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	230	330	9500 [8]	No	BSL, BKG
	207-08-9	Benzo(k)fluoranthene	52 J	250 J	UG/KG	IOA-RIA33-SB02	3/9	10 - 20	250	320	350	No	BSL, BKG
	218-01-9	Chrysene	13 J	550 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	550	710	1100	No	BSL, BKG
	53-70-3	**Dibenzo(a,h)anthracene**	64 J	64 J	UG/KG	IOA-RIA33-SB02	1/9	26 - 40	64	**1.7**	**11**	**Yes**	ASL
	206-44-0	Fluoranthene	24 J	870 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	870	1100	70000	No	BSL, BKG
	86-73-7	Fluorene	11 J	89 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	89	NA	4000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	40 J	200 J	UG/KG	IOA-RIA33-SB02	3/9	34 - 40	200	390	200	No	BSL, BKG
	91-20-3	**Naphthalene**	11 J	33 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	33	NA	**0.47**	**Yes**	ASL
	85-01-8	Phenanthrene	11 J	610 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	610	**360**	9500 [8]	No	BSL
	129-00-0	Pyrene	20 J	910 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	910	1000	9500	No	BSL, BKG
	METALS												
	7429-90-5	Aluminum	3600	7900	MG/KG	IOA-RIA33-SB14	9/9	-	7900	8520	23000	No	BSL, BKG
	7440-36-0	Antimony	0.3	0.53	MG/KG	IOA-RIA33-SB14	2/9	0.056 - 0.13	0.53	3.65	**0.27**	No	BKG
	7440-38-2	**Arsenic**	0.13 J	2.3	MG/KG	IOA-RIA33-SB10	9/9	-	2.3	**1.9**	**0.0013**	**Yes**	ASL
	7440-39-3	Barium	7.8	17	MG/KG	IOA-RIA33-SB10	9/9	-	17	27.0	120	No	BSL, BKG
	7440-41-7	Beryllium	0.26 J	0.54	MG/KG	IOA-RIA33-SB08	7/9	0.17 - 0.26	0.54	**0.44**	13	No	BSL
	7440-43-9	Cadmium	0.14	0.28	MG/KG	IOA-RIA33-SB10	7/9	0.083 - 0.11	0.28	**0.115**	0.52	No	BSL
	7440-70-2	Calcium	820	1700	MG/KG	IOA-RIA33-SB10	9/9	-	1700	**1550**	NA	No	NUT
	18540-29-9	**Chromium**	4.7	11	MG/KG	IOA-RIA33-SB04	9/9	-	11	**10.2**	**0.00059** [9]	**Yes**	ASL
	7440-48-4	**Cobalt**	1.9	6.8	MG/KG	IOA-RIA33-SB14	9/9	-	6.8	**4.7**	**0.21**	**Yes**	ASL
	7440-50-8	Copper	3.6	12	MG/KG	IOA-RIA33-SB10	9/9	-	12	14.2	22	No	BSL, BKG
	7439-89-6	**Iron**	4900	18000	MG/KG	IOA-RIA33-SB08	9/9	-	18000	**11,400**	**270**	**Yes**	ASL

TABLE 4-6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**METALS (continued)**												
	7439-92-1	**Lead**	2.6	20	MG/KG	IOA-RIA33-SB02	9/9	-	20	**9.3**	**14** [10]	**Yes**	ASL
	7439-95-4	Magnesium	1100	2400	MG/KG	IOA-RIA33-SB04, IOA-RIA33-SB14	9/9	-	2400	**2250**	NA	No	NUT
	7439-96-5	Manganese	65 J	320 J	MG/KG	IOA-RIA33-SB14, IOA-RIA33-SB14	9/9	-	320	413	**21**	No	BKG
	7439-97-6	Mercury	0.002 J	0.018 J	MG/KG	IOA-RIA33-SB02	5/9	0.01 - 0.013	0.018	0.11	0.033	No	BSL, BKG
	7440-02-0	Nickel	3.8	8.9	MG/KG	IOA-RIA33-SB10, IOA-RIA33-SB14	9/9	-	8.9	**6.5**	20	No	BSL
	7440-09-7	Potassium	250 J	440 J	MG/KG	IOA-RIA33-SB04	9/9	-	440	457	NA	No	NUT, BKG
	7440-23-5	Sodium	36 J	58 J	MG/KG	IOA-RIA33-SB10	9/9	-	58	144	NA	No	NUT, BKG
	7440-28-0	Thallium	0.09 J	0.09 J	MG/KG	IOA-RIA33-SB10	1/9	0.065 - 0.091	0.09	0.22	**0.011**	No	BKG
	7440-62-2	Vanadium	8.5	20	MG/KG	IOA-RIA33-SB02	9/9	-	20	**17.1**	78	No	BSL
	7440-66-6	Zinc	17	42	MG/KG	IOA-RIA33-SB02	9/9	-	42	**28.7**	290	No	BSL

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth subsurface soil background concentrations (Stone and Webster, 2002).
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012.
Soil screening levels (SSLs) for groundwater protection are risk-based SSLs and are based on a dilution attenuation factor (DAF) of 1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level
and, for PAHs and metals, is greater than the background value.
7 - The value for acenaphthene is used as a surrogate for acenaphthylene.
8 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
9 - The value is for hexavalent chromium.
10 - The Maximum Contaminant Level (MCL)-based SSL is presented.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:

IOA-RIA33-SB02	IOA-RIA82-SB02A
IOA-RIA33-SB04	IOA-RIA82-SB03A
IOA-RIA33-SB08	IOA-RIA82-SB04A
IOA-RIA33-SB10	
IOA-RIA33-SB14	
IOA-RIA33-SB14	
IOA-RIA33-SB14	
IOA-RIA82-SB01A	

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above screening level and background

For elimination as a COPC:
BKG = Less than background concentration (for PAHs and metals)
BSL = Below screening level
NUT = Essential nutrient

TABLE 4-7
SUMMARY OF REFINED MIGRATION TO GROUNDWATER EVALUATION - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical	Less than SSL at a DAF of 20[1]	Not a Groundwater COPC[2]	Less than Primary MCL[3]	Retain Chemical for Further Analysis?[4]	Rationale
Volatiles					
1,1-Dichloroethane	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Trichloroethene		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Semivolatiles					
Benzo(a)pyrene			X	No	Not evaluated further as discussed in Section 4.1.3.
Dibenzo(a,h)anthracene	X	X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Naphthalene				**Yes**	Several detections of naphthalene in subsurface soil exceed the SSL based on a DAF of 20 by more than one order of magnitude; several detections of napthalene in groundwater exceed the RSL by more than one order of magnitude.
Metals					
Arsenic			X	No	Not evaluated further as discussed in Section 4.1.3.
Chromium		X	X	No	Not evaluated further as discussed in Section 4.1.3.
Cobalt		X (ND)		No	Not evaluated further as discussed in Section 4.1.3.
Iron		X		No	Not evaluated further as discussed in Section 4.1.3.
Lead	X			No	Not evaluated further as discussed in Section 4.1.3.

1 - The maximum concentration detected in subsurface soil does not exceed the risk-based SSL at a DAF of 20 (i.e., 20 times the SSL at a DAF of 1 presented in Table 4-6).

2 - The maximum detected concentration in groundwater does not exceed applicable tap water screening criteria (e.g., criteria based on the USEPA RSL, the MCL) and/or background (for metals and PAHs) (see Appendix C.4).

3 - Although the maximum detected concentration in groundwater exceeds the screening level based on the tap water RSL and/or background, concentrations do not exceed the MCL (see Appendix C.4).

4 - This determination considers the comparisons of soil concentrations to SSLs at a DAF of 20 and groundwater concentrations to screening criteria as shown in this table as well as frequency of soil and groundwater detections exceeding criteria and comparisons to MCL-based SSLs. See Section 4.1.3 for explanation of the lines of evidence used in the refined migration to groundwater evaluation.

COPC = Chemical of potential concern.
DAF = Dilution attenuation factor.
MCL = Maximum Contaminant Level.
ND = Not detected.
RSL = Regional Screening Level.
SSL = Soil Screening Level.
X = Indicates the line of evidence is true for the chemical.

TABLE 4-8
EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF POTENTIAL CONCERN
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Surface Soil - High Concentrations Area[1] (mg/kg)	Surface Soil - Low Concentrations Area[1] (mg/kg)	Subsurface Soil[1] (mg/kg)
PAHs			
Benzo(a)pyrene Equivalents	3.8[2]	0.21[2]	0.253[9]
Pesticides/PCBs			
Aroclor-1260	0.063[3]	1.5[8]	NA
Heptachlor Epoxide	0.16[4]	0.0067[9]	NA
Dioxins/Furans			
2,3,7,8-TCDD Equivalents	0.0000092[3]	0.0000080[10]	NA
Inorganics			
Aluminum	8000[5]	7300[5]	NA
Arsenic	7.1[5]	6.2[5]	1.7[5]
Chromium	93.8[6]	9.9[5]	9.2[5]
Cobalt	4.2[5]	4.1[11]	4.7[5]
Iron	15000[5]	15000[5]	13000[5]
Lead	240[7]	24[7]	NA
Manganese	220[5]	240[10]	NA

1 - UCLs calculated by the EPA's ProUCL software unless otherwise noted. See RAGS Part D Table 3s in Appendix D for details concerning the UCLs.
2 - 95% KM (BCA) UCL
3 - Maximum detected concentration
4 - 95% KM (Chebyshev) UCL
5 - 95% Student's-t UCL
6 - 95% Chebyshev (Mean, Sd) UCL
7 - Arithmetic mean concentration
8 - 97.5% KM (Chebyshev) UCL
9 - 95% KM (t) UCL
10 - 95% Approximate Gamma UCL
11 - 95% KM (Percentile Bootstrap) UCL
12 - 95% Modified-t UCL

NA = Not applicable

TABLE 4-9
RECEPTOR EXPOSURE ASSUMPTIONS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Exposure Parameter	Commercial Receptors[1]		Future Resident	
	Child	Adult	Child	Adult
All Exposures				
C_{soil} (mg/kg)	Maximum or 95% UCL[2]	Maximum or 95% UCL[2]	Maximum or 95% UCL[2]	Maximum or 95% UCL[2]
ED (years)	6[3]	24[3]	6[4]	24[4]
BW (kg)	15[3]	70[3]	15[4]	70[4]
AT_n (days)	ED x 365[4]	ED x 365[4]	ED x 365[4]	ED x 365[4]
AT_c (days)	25550[4]	25550[4]	25550[4]	25550[4]
Incidental Ingestion/Dermal Contact with Soil				
IR (mg/day)	200[3]	100[3]	200[9]	100[9]
EF-Soil (days/year)	150[5]	150[5]	350[10]	350[10]
FI (unitless)	0.5[6]	0.5[6]	1[7]	1[7]
SA (cm^2)	2800[3]	5700[3]	2800[10]	5700[10]
AF (mg/cm^2-event)	0.2[3]	0.07[3]	0.2[10]	0.07[10]
EV (events/day)	1[3]	1[3]	1[10]	1[10]
ABS (unitless)	Chemical Specific	Chemical Specific	Chemical Specific	Chemical Specific
CF (kg/mg)	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil				
C_{air} (mg/m^3)	Calculated	Calculated	Calculated	Calculated
ET (hours/day)	4[7]	4[7]	24[9]	24[9]
PEF (m^3/kg)	1.10E+10[8]	1.10E+10[8]	1.10E+10[8]	1.10E+10[8]

Notes:

ABS Absorption factor
AF Soil-to-skin adherence factor
AT_c Averaging time for carcinogenic effects
AT_n Averaging time for noncarcinogenic effects
BW Body weight
CF Conversion factor
$C_{soil/air}$ Exposure concentration for soil/air
ED Exposure duration
EF Exposure frequency
ET Exposure time
EV Event frequency
FI Fraction ingested from contaminated source
IR Ingestion rate
PEF Particulate Emission Factor
SA Skin surface area available for contact
UCL Upper Confidence Limit

1 - Small child and adult commercial receptors are assumed to be customers or apartment dwellers.
2 - USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
3 - Assumed same as resident.
4 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
5 - Commercial receptors are assumed to visit facility/open spaces approximately three times per week.
6 - Commercial receptors are assumed to visit facility/open spaces only for a portion of the day.
7 - Professional judgment.
8 - USEPA, 2012: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, CT.
9 - USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.
10 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

TABLE 4-10
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD: Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
PAHs										
Benzo(a)pyrene Equivalents	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs										
Aroclor-1260[3]	Chronic	2.00E-05	mg/kg/day	1	2.0E-05	mg/kg/day	Immune	300/1	IRIS	3/13/2013
Heptachlor Epoxide	Chronic	1.30E-05	mg/kg/day	1	1.3E-05	mg/kg/day	Liver	1000/1	IRIS	3/13/2013
Dioxins/Furans										
2,3,7,8-TCDD Equivalents	Subchronic	2.0E-08	mg/kg/day	1	2.0E-08	mg/kg/day	Developmental	30/1	ATSDR	12/1998
	Chronic	7.00E-10	mg/kg/day	1	7.0E-10	mg/kg/day	Reproductive	30/1	IRIS	6/22/2012
Inorganics										
Aluminum	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	CNS	100/1	PPRTV	10/23/2006
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, CVS	3/1	IRIS	3/13/2013
Chromium[4]	Subchronic	2.0E-02	mg/kg/day	0.025	5.0E-04	mg/kg/day	None Specified	100/3	HEAST	9/1997
	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	None Specified	300/3	IRIS	3/13/2013
Cobalt	Subchronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Thyroid	NA	PPRTV	8/25/2008
	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Thyroid	NA	PPRTV	8/25/2008
Iron	Subchronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese[5]	Chronic	2.4E-02	mg/kg/day	0.04	9.6E-04	mg/kg/day	CNS	1	IRIS	3/13/2013

Notes:
1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.
3 - Value is for Aroclor-1254.
4 - Value is for hexavalent chromium.
5 - Adjusted IRIS value in accordance with IRIS.

Definitions:
ATSDR = Agency for Toxic Substances and Disease Registry
CNS = Central nervous system
CVS = Cardiovascular system
GS = Gastrointestinal system
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
NA = Not available
PAHs = Polycyclic aromatic hydrocarbon
PPRTV = Provisional Peer Reviewed Toxicity Value
RfD = Reference dose

TABLE 4-11
NON-CANCER TOXICITY DATA -- INHALATION
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC: Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
PAHs									
Benzo(a)pyrene Equivalents	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs									
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans									
2,3,7,8-TCDD Equivalents	Chronic	4.0E-08	mg/m^3	1.1E-08	(mg/kg/day)	Developmental	NA	Cal EPA	9/2009
Inorganics									
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	(mg/kg/day)	CNS	300/1	PPRTV	10/23/2006
Arsenic	Chronic	1.5E-05	mg/m^3	4.3E-06	(mg/kg/day)	NA	NA	Cal EPA	9/2009
Chromium[2]	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	3/13/2013
	Subchronic	2.0E-05	mg/m^3	5.7E-06	(mg/kg/day)	Respiratory	NA	PPRTV	8/25/2008
Cobalt	Chronic	6.0E-06	mg/m^3	1.7E-06	(mg/kg/day)	Respiratory	NA	PPRTV	8/25/2008
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	(mg/kg/day)	CNS	1000/1	IRIS	3/13/2013

Notes:

1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg.

2 - Value is for hexavalent chromium.

Cal EPA = California Environmental Protection Agency
CNS = Central nervous system
IRIS = Integrated Risk Information System
NA = Not Applicable
PAH = Polycyclic aromatic hydrocarbon
PPRTV = Provisional Peer Reviewed Toxicity Value
RfC = Reference concentration
RfD = Reference dose

TABLE 4-12
CANCER TOXICITY DATA -- ORAL/DERMAL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
PAHs								
BAP Equivalents[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Pesticides/PCBs								
Aroclor-1260	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Heptachlor Epoxide	9.1E+00	$(mg/kg/day)^{-1}$	1	9.1E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	3/13/2013
Dioxins/Furans								
2,3,7,8-TCDD Equivalents	1.3E+05	$(mg/kg/day)^{-1}$	1	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	3/13/2013
Chromium[3][4]	5.0E-01	$(mg/kg/day)^{-1}$	0.025	2.0E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	NJDEP	4/8/2009
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	D (Not classifiable as to human carcinogenicity)	IRIS	3/13/2013

Notes:
1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral Absorption Efficiency for Dermal.
3 - Benzo(a)pyrene and related compounds and hexavalent chromium are considered to act via the mutagenic mode of action and were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).
4 - Value is for hexavalent chromium.

Cal EPA = California Environmental Protection Agency.
CSF = Cancer slope factor.
IRIS = Integrated Risk Information System.
NA = Not Available.
Sodium Dichromate Dihydrate, April 8, 2009.
PAH = Polycyclic aromatic hydrocarbon.
USEPA(1) = Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993 EPA/600/R-93/089.
USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

TABLE 4-13
CANCER TOXICITY DATA -- INHALATION
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
PAHs							
Benzo(a)pyrene Equivalents[2]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	3/13/2013
Pesticides/PCBs							
Aroclor-1260	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Heptachlor Epoxide	2.6E-03	$(ug/m^3)^{-1}$	9.1E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	6/22/2012
Dioxins/Furans							
2,3,7,8-TCDD Equivalents	3.8E+01	$(ug/m^3)^{-1}$	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Inorganics							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	6/22/2012
Chromium[2][3]	8.4E-02	$(ug/m^3)^{-1}$	2.9E+02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	6/22/2012
Cobalt	9.0E-03	$(ug/m^3)^{-1}$	3.2E+01	$(mg/kg/day)^{-1}$	NA	PPRTV	8/25/2008
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	6/22/2012

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / $20m^3$/day.

2 - Benzo(a)pyrene and related compounds and hexavalent chromium are considered to act via the mutagenic mode of action and were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

3 - Value is for hexavalent chromium.

4 - USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

Cal EPA = California Environmental Protection Agency.
CSF = Cancer slope factor.
IRIS = Integrated Risk Information System.
NA = Not Available.
PAHs = Polycylic aromatic hydrocarbons.
PPRTV = Provisional Peer Reviewed Toxicity Value.

TABLE 5-1
SURFACE SOIL CONCENTRATIONS COMPARED TO CLEANUP GOALS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID		SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	IOA-SS-EU10-0002	SB07-305-NSO-110402	SB07-305-NSO-1104020-D	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-327-NSO-0716031	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-337-NSO-101503
LOCATION ID		SB07-308	SB07-308	SB07-309	SB07-309	IOA-SS-EU10	SB07-305	SB07-305	SB07-311	SB07-326	SB07-327	SB07-328	SB07-329	SB07-329	SB07-337
SAMPLE DATE		11/04/02	11/04/02	11/04/02	11/04/02	08/10/11	11/04/02	11/04/02	11/04/02	07/16/03	07/16/03	07/16/03	07/16/03	07/16/03	10/15/03
DEPTH		0 - 0.5 FT	0.5 - 1 FT	0 - 0.5 FT	0.5 - 1 FT	0 - 2 FT	0.5 - 1 FT	0.5 - 1 FT	0.5 - 1 FT	1 - 1.5 FT	1 - 1.5 FT	1 - 2 FT	0 - 1 FT	1 - 2 FT	0.5 - 1.5 FT
EXPOSURE UNIT		EU08	EU08	EU08	EU08	EU10	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
CRITERIA	CLEANUP GOAL *														
SEMIVOLATILES (UG/KG)															
BAP EQUIVALENT-HALFND	2130	NA	52.3 J	NA	621 J	NA	136 J	92.8 J	124	NA	NA	NA	NA	NA	NA
BAP EQUIVALENT-POS	2130	NA	51 J	NA	621 J	NA	136 J	92.8 J	124	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	1500	NA	29 J	NA	310	NA	77 J	79 J	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE **	1829.8	NA	30 J	NA	400	NA	66 J	61 J	100	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	1500	NA	59 J	NA	610	NA	130 J	110 J	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	15000	NA	260 U	NA	230 J	NA	65 J	48 J	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	150	NA	7.3 J	NA	95	NA	40 J	6.6 J	24	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	1500	NA	49 J	NA	310	NA	87 J	58 J	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)															
AROCLOR-1260	1100	1800	160	250	220	12000	230	200	1000 J	1500	2900	500	1200	600	330
HEPTACHLOR EPOXIDE	530	NA	0.85 U	NA	0.84 U	NA	0.85 U	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL AROCLOR	1100	1800	160	250	220	12000	230	200	1000 J	1500	2900	500	1200	600	330
METALS (MG/KG)															
ARSENIC **	5.31	NA	3.4	NA	2.9	NA	3.7	5.5	NA	NA	NA	NA	NA	NA	NA
CHROMIUM **	10.1	NA	12	NA	11	NA	9.6	8.1	NA	NA	NA	NA	NA	NA	NA
LEAD	400	NA	40	NA	25	NA	45	27	NA	NA	NA	NA	NA	NA	NA
DIOXINS/FURANS (NG/KG)															
TEQ	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TEQ HALFND	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

* Cleanup goal equals PRG unless noted otherwise.

** Cleanup goal equals the background value.

TABLE 5-1
SURFACE SOIL CONCENTRATIONS COMPARED TO CLEANUP GOALS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

SAMPLE ID		IOA-SS-EU17-0002	NAS-AOC13-SW04	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-D	IOA-SS-EU29-0002-AVG	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SS06-020-NSO-102798	SB06005-NSO-120898-0	SS06-020-NSO-102798-D	SS06-020-NSO-102798-AVG
LOCATION ID		IOA-SS-EU17	AOC13-SW04	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	SB06-006	SB06-007	SS06-020	SB06-005	SS06-020	SS06-020
SAMPLE DATE		08/10/11	09/30/04	12/08/98	12/08/98	08/10/11	08/10/11	08/10/11	12/08/98	12/08/98	10/27/98	12/08/98	10/27/98	10/27/98
DEPTH		0 - 2 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 2 FT	0 - 2 FT	0 - 2 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT	0 - 1 FT
EXPOSURE UNIT		EU17	EU28	EU28	EU28	EU29	EU29	EU29	EU38	EU38	EU39	EU39	EU39	EU39
CRITERIA	**CLEANUP GOAL ***													
SEMIVOLATILES (UG/KG)														
BAP EQUIVALENT-HALFND	2130	318 J	413	6710 J	15600 J	1880 J	1960 J	1920 J	3530 J	1220 J	NA	1560 J	NA	NA
BAP EQUIVALENT-POS	2130	318 J	413	6710 J	15600 J	1880 J	1960 J	1920 J	3530 J	1220 J	NA	1560 J	NA	NA
BENZO(A)ANTHRACENE	1500	200 J	300	6000 J	12000 J	1700 J	1500 J	1600 J	2900 J	3500 J	NA	2700 J	NA	NA
BENZO(A)PYRENE **	1829.8	220 J	270	4800 J	11000 J	1300 J	1400 J	1350 J	2600 J	540 J	NA	750 J	NA	NA
BENZO(B)FLUORANTHENE	1500	340 J	370	6100 J	17000 J	2000 J	1900 J	1950 J	2900 J	2000 J	NA	2800 J	NA	NA
BENZO(K)FLUORANTHENE	15000	130 J	130	4600 J	9400 J	800 J	890 J	845 J	2500 J	1700 J	NA	2800 J	NA	NA
DIBENZO(A,H)ANTHRACENE	150	30 J	52	290 J	720 J	150 J	150 J	150 J	100 J	52 J	NA	87 J	NA	NA
INDENO(1,2,3-CD)PYRENE	1500	120 J	220	3600 J	8300 J	480 J	580 J	530 J	2200 J	560 J	NA	1400 J	NA	NA
PESTICIDES/PCBS (UG/KG)														
AROCLOR-1260	1100	1800	NA	34 U	35 U	59	63	61	35 U	35 U	NA	36 U	NA	NA
HEPTACHLOR EPOXIDE	530	NA	NA	63 J	200 J	NA	NA	NA	13 J	26 J	NA	21 J	NA	NA
TOTAL AROCLOR	1100	1800	NA	39 U	40 U	59	63	61	39.9 U	39.9 U	NA	41.1 U	NA	NA
METALS (MG/KG)														
ARSENIC **	5.31	1.2	NA	2.6	4.1	6.4	5	5.7	10.4	7.3	NA	8.1	NA	NA
CHROMIUM **	10.1	12	NA	11.9	18.7	14	10	12	12.3	10.9	NA	149	NA	NA
LEAD	400	69 J	NA	90.7	114	20 J	12 J	16 J	141	75.6	550	1280	456	503
DIOXINS/FURANS (NG/KG)														
TEQ	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TEQ HALFND	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

* Cleanup goal equals PRG unless noted otherwise.

** Cleanup goal equals the background value.

TABLE 5-1
SURFACE SOIL CONCENTRATIONS COMPARED TO CLEANUP GOALS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

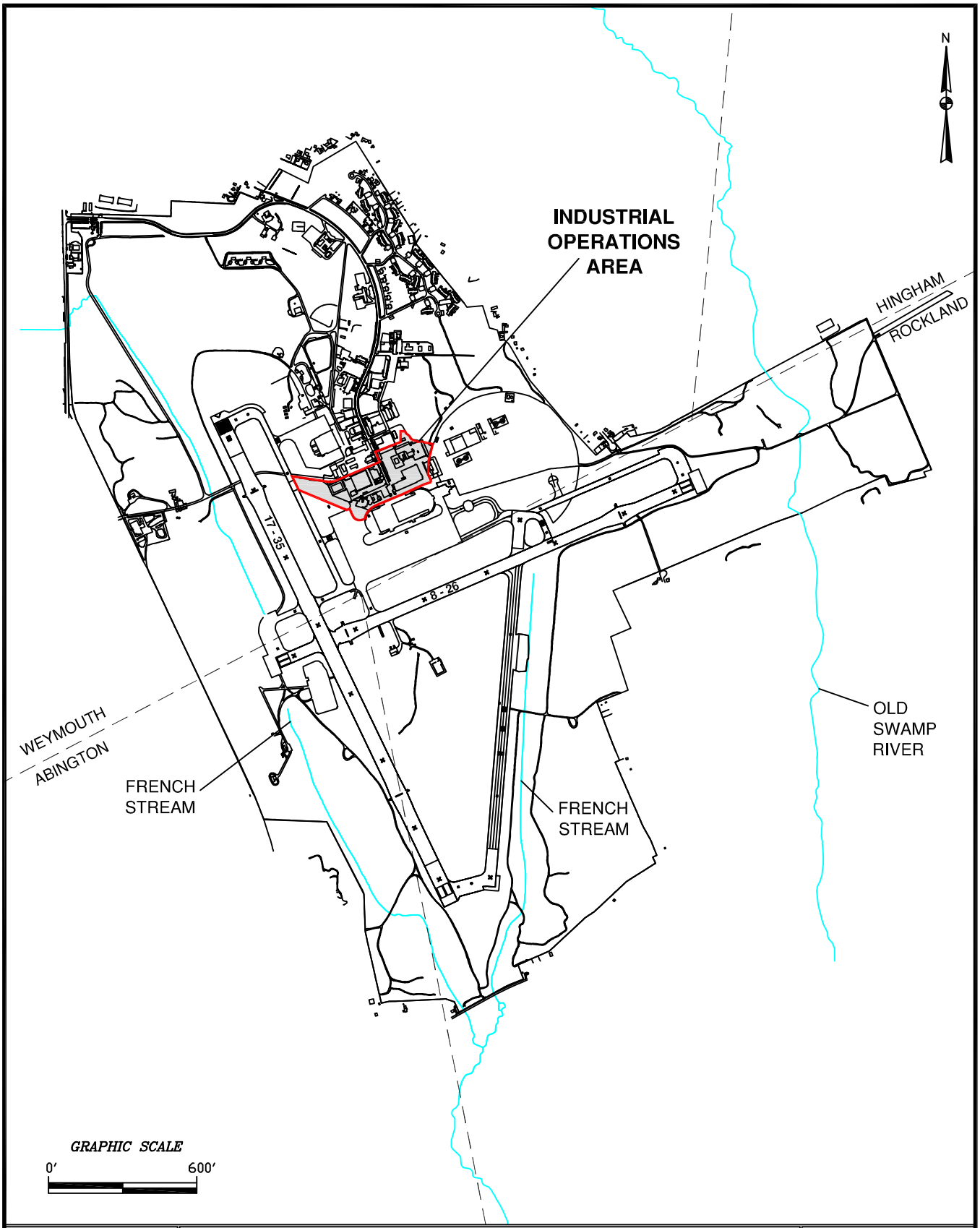
SAMPLE ID		IOA-SS-EU39-0002	IOA-SS-EU40-0002	IOA-SS-EU49-0002
LOCATION ID		IOA-SS-EU39	IOA-SS-EU40	IOA-SS-EU49
SAMPLE DATE		08/09/11	08/10/11	08/10/11
DEPTH		0 - 2 FT	0 - 2 FT	0 - 2 FT
EXPOSURE UNIT		EU39	EU40	EU49
CRITERIA	**CLEANUP GOAL ***			
SEMIVOLATILES (UG/KG)				
BAP EQUIVALENT-HALFND	2130	NA	7970 J	19 UJ
BAP EQUIVALENT-POS	2130	NA	7970 J	NA
BENZO(A)ANTHRACENE	1500	NA	6300 J	19 UJ
BENZO(A)PYRENE **	1829.8	NA	5600 J	19 UJ
BENZO(B)FLUORANTHENE	1500	NA	7400 J	19 UJ
BENZO(K)FLUORANTHENE	15000	NA	3200 J	19 UJ
DIBENZO(A,H)ANTHRACENE	150	NA	700 J	37 UJ
INDENO(1,2,3-CD)PYRENE	1500	NA	2600 J	37 UJ
PESTICIDES/PCBS (UG/KG)				
AROCLOR-1260	1100	NA	46	7.4 U
HEPTACHLOR EPOXIDE	530	NA	NA	NA
TOTAL AROCLOR	1100	NA	46	7.4 U
METALS (MG/KG)				
ARSENIC **	5.31	NA	5.3	36
CHROMIUM **	10.1	NA	15	7.9
LEAD	400	NA	100 J	16
DIOXINS/FURANS (NG/KG)				
TEQ	45	9.15 J	NA	NA
TEQ HALFND	45	9.2 J	NA	NA

* Cleanup goal equals PRG unless noted otherwise.

** Cleanup goal equals the background value.

FIGURES

ACAD: I: \02073\FI.TM.IOA\PR\IOA_BASE_MAP.DWG 11/15/12 DWM



TETRA TECH

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

MAIN BASE MAP

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

SCALE	PER SCALE BAR
FILE	\..\IOA_BASE_MAP.DWG
REV	0
DATE	11/15/12
FIGURE NUMBER	1–1

I:\02073FI.TM.IOA\PRIOA_SITE_BOUNDARIES.MXD DWM 12/03/12

N

RIA-78B
RIA-37
RIA-89
RIA-33
RIA-82
RIA-88
RIA-16
RIA-106
RIA-10C
AOC-83
AOC-13
AOC-15
AOC-14
3-17527
3-14180
3-15516
3-15346
3-15350
3-13157
3-19064
Water Tower
PAD B6
HANGAR NO. 1

Legend

Zoning

- Main Street Overlay District
- Mixed-Use Village District (MUVD)
- Open Space-Corporation District (OS-C)
- Open Space-Weymouth District (OS-W)
- Recreation District (RecD)
- Residential District (RD)
- Shea Village Overlay District
- Village Center District (VCD)

- CERCLA AOC Boundary
- RTN Site Boundary
- RIA Boundary
- Industrial Operations Area Boundary
- Activity Use Limits
- Approximate Excavation Area
- Approximate Excavation Area

0 75 150 300 Feet

TETRA TECH

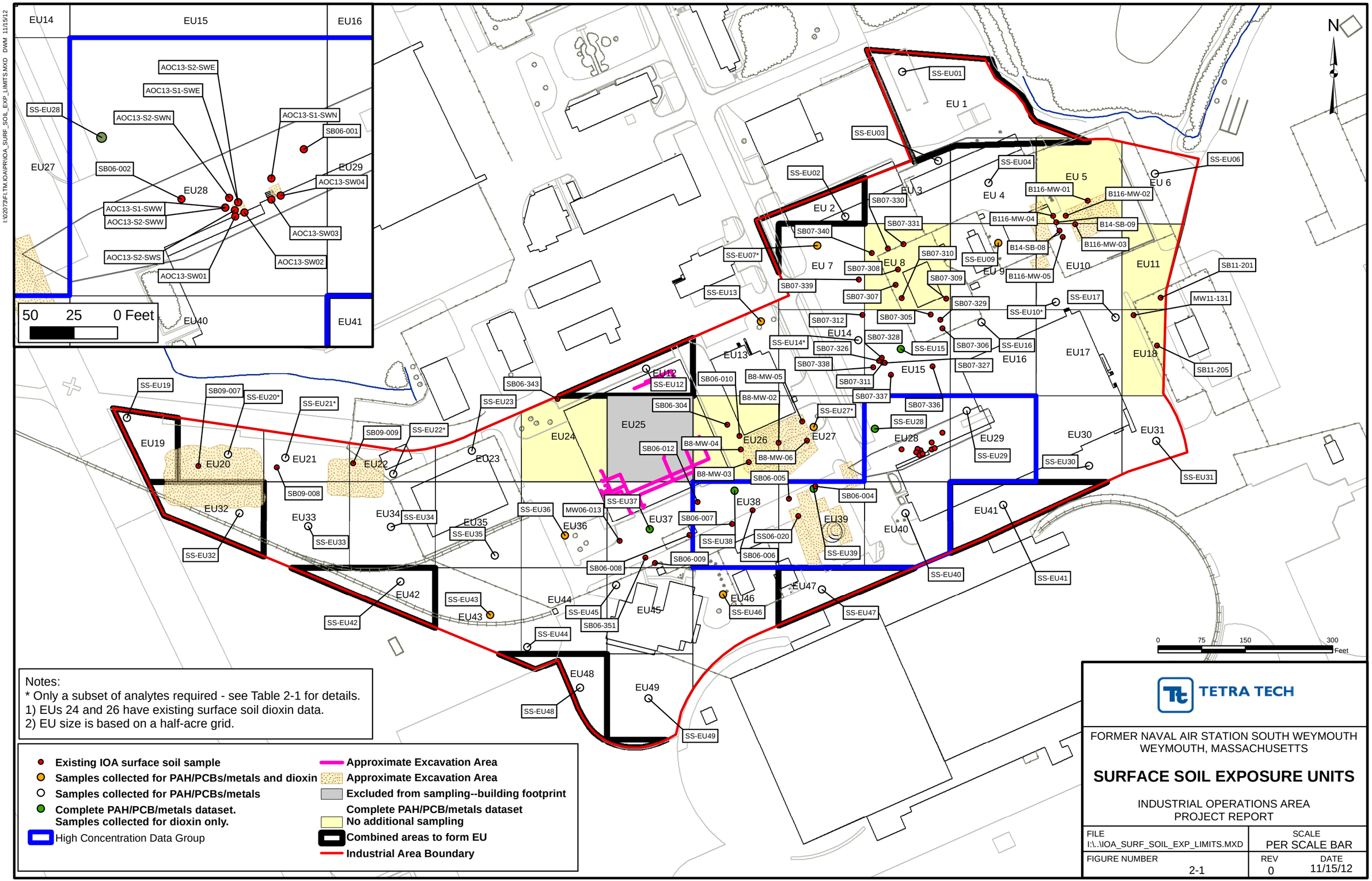
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SITE BOUNDARIES

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\IOA_SITE_BOUNDARIES.MXD	PER SCALE BAR
FIGURE NUMBER 1-2	REV 0 / DATE 12/03/12

I:\02073FI.TM.IOA\PRIOA_SURF_SOIL_EXP_LIMITS.MXD DWM 11/15/12



Notes:
* Only a subset of analytes required - see Table 2-1 for details.
1) EUs 24 and 26 have existing surface soil dioxin data.
2) EU size is based on a half-acre grid.

- **Existing IOA surface soil sample**
- **Samples collected for PAH/PCBs/metals and dioxin**
- **Samples collected for PAH/PCBs/metals**
- **Complete PAH/PCB/metals dataset. Samples collected for dioxin only.**
- High Concentration Data Group
- **Approximate Excavation Area**
- **Approximate Excavation Area**
- **Excluded from sampling--building footprint**
- **Complete PAH/PCB/metals dataset No additional sampling**
- **Combined areas to form EU**
- **Industrial Area Boundary**

TETRA TECH

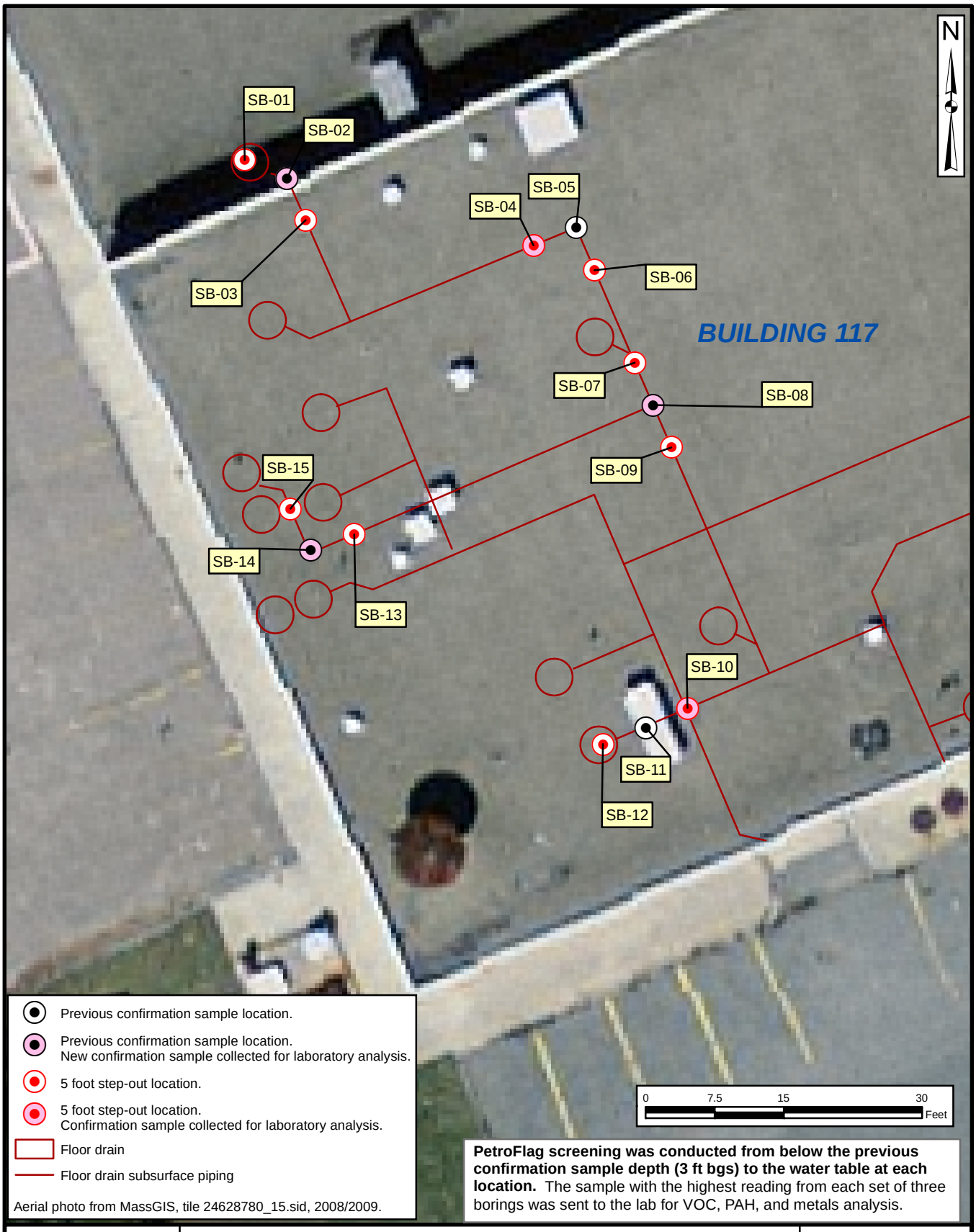
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SURFACE SOIL EXPOSURE UNITS

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\IOA_SURF_SOIL_EXP_LIMITS.MXD	PER SCALE BAR
FIGURE NUMBER 2-1	REV 0 / DATE 11/15/12

I:\02073\FI.TM.IOA\PR\IOA_RIA33_SAMP_LOCSE.MXD DWM 11/15/12



Previous confirmation sample location.

Previous confirmation sample location.
New confirmation sample collected for laboratory analysis.

5 foot step-out location.

5 foot step-out location.
Confirmation sample collected for laboratory analysis.

Floor drain

Floor drain subsurface piping

Aerial photo from MassGIS, tile 24628780_15.sid, 2008/2009.

PetroFlag screening was conducted from below the previous confirmation sample depth (3 ft bgs) to the water table at each location. The sample with the highest reading from each set of three borings was sent to the lab for VOC, PAH, and metals analysis.

TETRA TECH

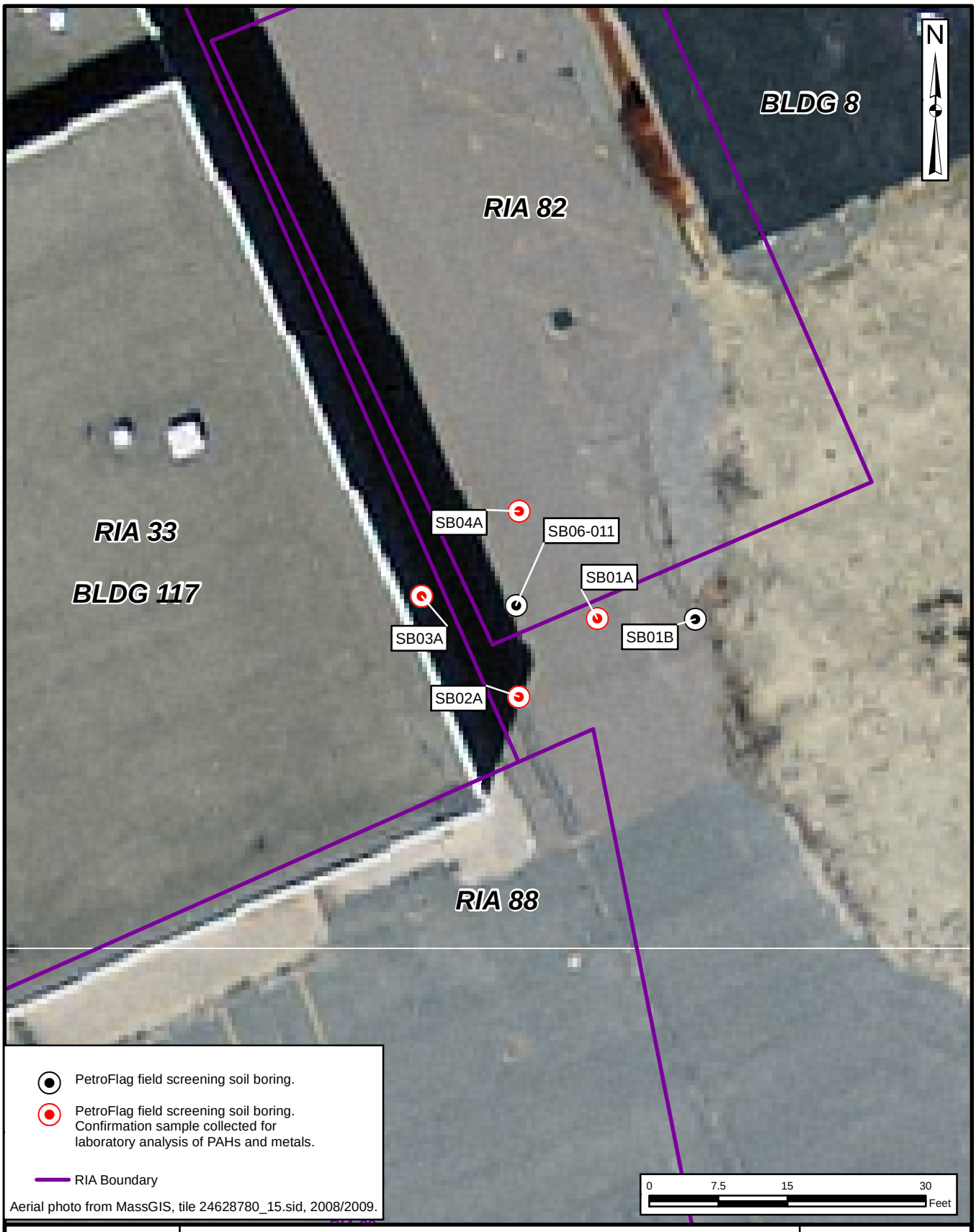
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SAMPLE LOCATIONS - RIA 33

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

SCALE	
PER SCALE BAR	
FILE	
I:\..\IOA_RIA33_SAMP_LOCS.MXD	
REV	DATE
0	11/15/12
FIGURE NUMBER	
2-2	

I:\02073\FI.TM.IOA\PRI\OA_RIA82_SAMP_LOCS.MXD DWM 11/15/12



TETRA TECH

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SAMPLE LOCATIONS - RIA 82

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

SCALE	PER SCALE BAR
FILE	I:\..\IOA_RIA82_SAMP_LOCS.MXD
REV	0
DATE	11/15/12
FIGURE NUMBER	2-3

I:\02073FI.TM.IO\AP\RIA_GW_SAMP_LOC_MAP.MXD DWM 11/15/12

N

MW09-011
AVG-MW-1
AVG-MW-2
AVG-MW-3
AVG-MW-4
AVG-MW-5
AVG-MW-6
MW09-012
MW09-010
PAD B6
MW06-301
MW06-013
MW06-019
B8-MW-10
B8-MW-11
B8-MW-02
MW06-304
B8-MW-04
B8-MW-03
MW06-303
MW06-302
B8-MW-05
B8-MW-06
B8-MW-01
B8-MW-07
B8-MW-08
B8-MW-09
MW06-003
MW06-017
MW06-018
MW07-006
MW07-301
B116-MW-02
B14-MW-100
B116-MW-01
B116-MW-07
B116-MW-04
B116-MW-03
B116-MW-08
B116-MW-06
B14-MW-01
MW11-201
MW11-131
MW11-202
MW11-133
MW11-132
AOC-83
AOC-15
AOC-14
RIA-37
RIA-89
RIA-33
RIA-86
RIA-16
RIA-10C
RIA-10B
HANGAR NO. 1

Legend

- Monitoring Well Location (Destroyed)
- Monitoring Well Location
- Industrial Area Boundary
- RTN Site Boundary
- RIA Boundary
- CERCLA AOC Boundary

0 75 150 300 Feet

TETRA TECH

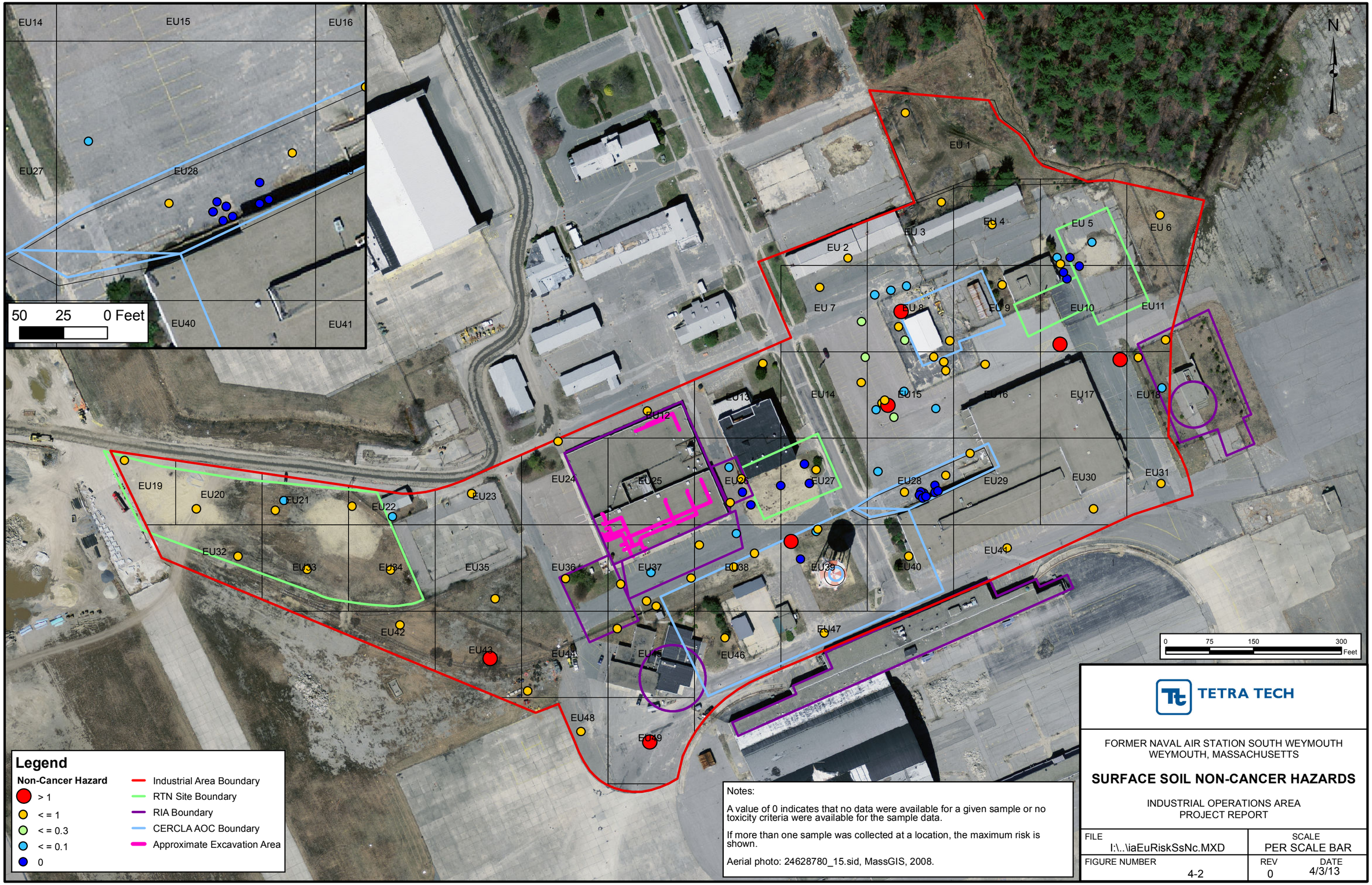
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

GROUNDWATER SAMPLE LOCATION MAP

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
IA_GW_SAMP_LOC_MAP.MXD	PER SCALE BAR
FIGURE NUMBER 4-1	REV 0 / DATE 11/15/12

I:\02073\FI,TM,IOA\PR\iaEuRiskSsNc.MXD GJG 4/3/13



Notes:

A value of 0 indicates that no data were available for a given sample or no toxicity criteria were available for the sample data.

If more than one sample was collected at a location, the maximum risk is shown.

Aerial photo: 24628780_15.sid, MassGIS, 2008.

TETRA TECH

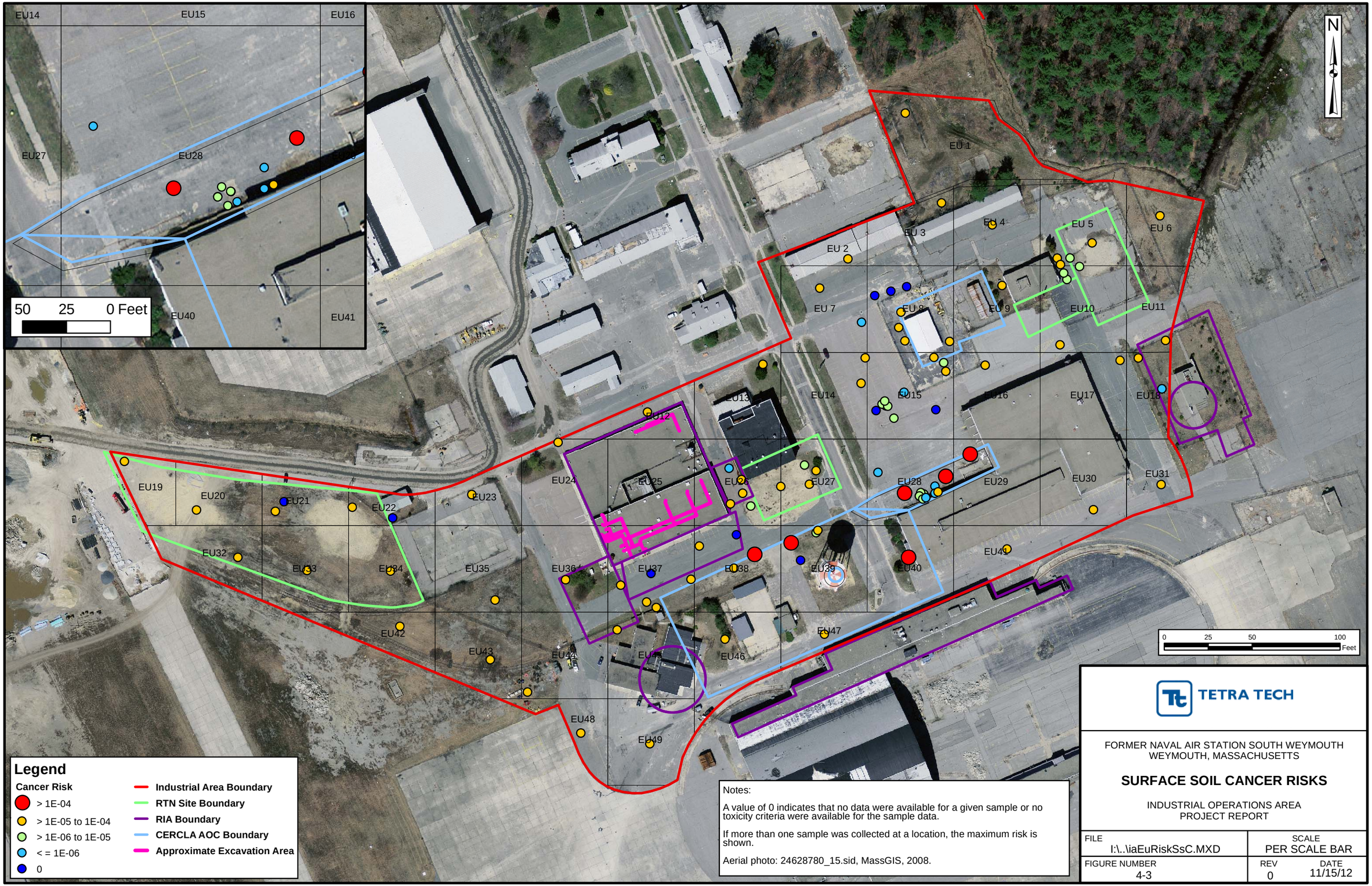
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SURFACE SOIL NON-CANCER HAZARDS

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\iaEuRiskSsNc.MXD	PER SCALE BAR
FIGURE NUMBER	REV / DATE
4-2	0 / 4/3/13

I:\02073FI.TM.IOA\PR\iaEuRiskSsC.MXD DWM 11/15/12



Legend

Cancer Risk

- > 1E-04
- > 1E-05 to 1E-04
- > 1E-06 to 1E-05
- < = 1E-06
- 0

- **Industrial Area Boundary**
- **RTN Site Boundary**
- **RIA Boundary**
- **CERCLA AOC Boundary**
- **Approximate Excavation Area**

Notes:

A value of 0 indicates that no data were available for a given sample or no toxicity criteria were available for the sample data.

If more than one sample was collected at a location, the maximum risk is shown.

Aerial photo: 24628780_15.sid, MassGIS, 2008.

TETRA TECH

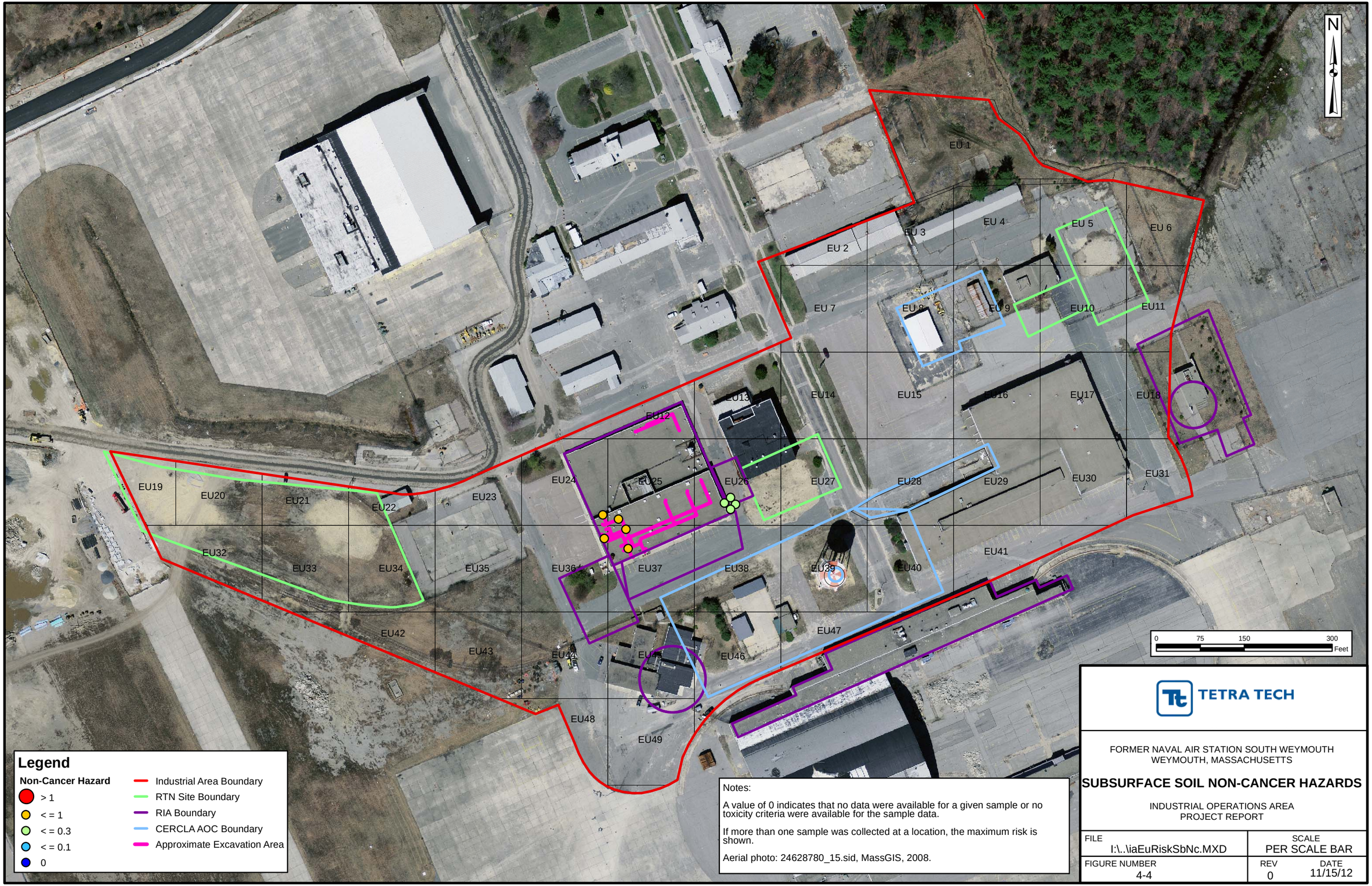
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SURFACE SOIL CANCER RISKS

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\iaEuRiskSsC.MXD	PER SCALE BAR
FIGURE NUMBER 4-3	REV 0 / DATE 11/15/12

I:\02073\FLTM.IOA\PR\iaEuRiskSbNc.MXD DWM 11/15/12



Legend

Non-Cancer Hazard

- > 1
- < = 1
- < = 0.3
- < = 0.1
- 0

- Industrial Area Boundary
- RTN Site Boundary
- RIA Boundary
- CERCLA AOC Boundary
- Approximate Excavation Area

Notes:

A value of 0 indicates that no data were available for a given sample or no toxicity criteria were available for the sample data.

If more than one sample was collected at a location, the maximum risk is shown.

Aerial photo: 24628780_15.sid, MassGIS, 2008.

TETRA TECH

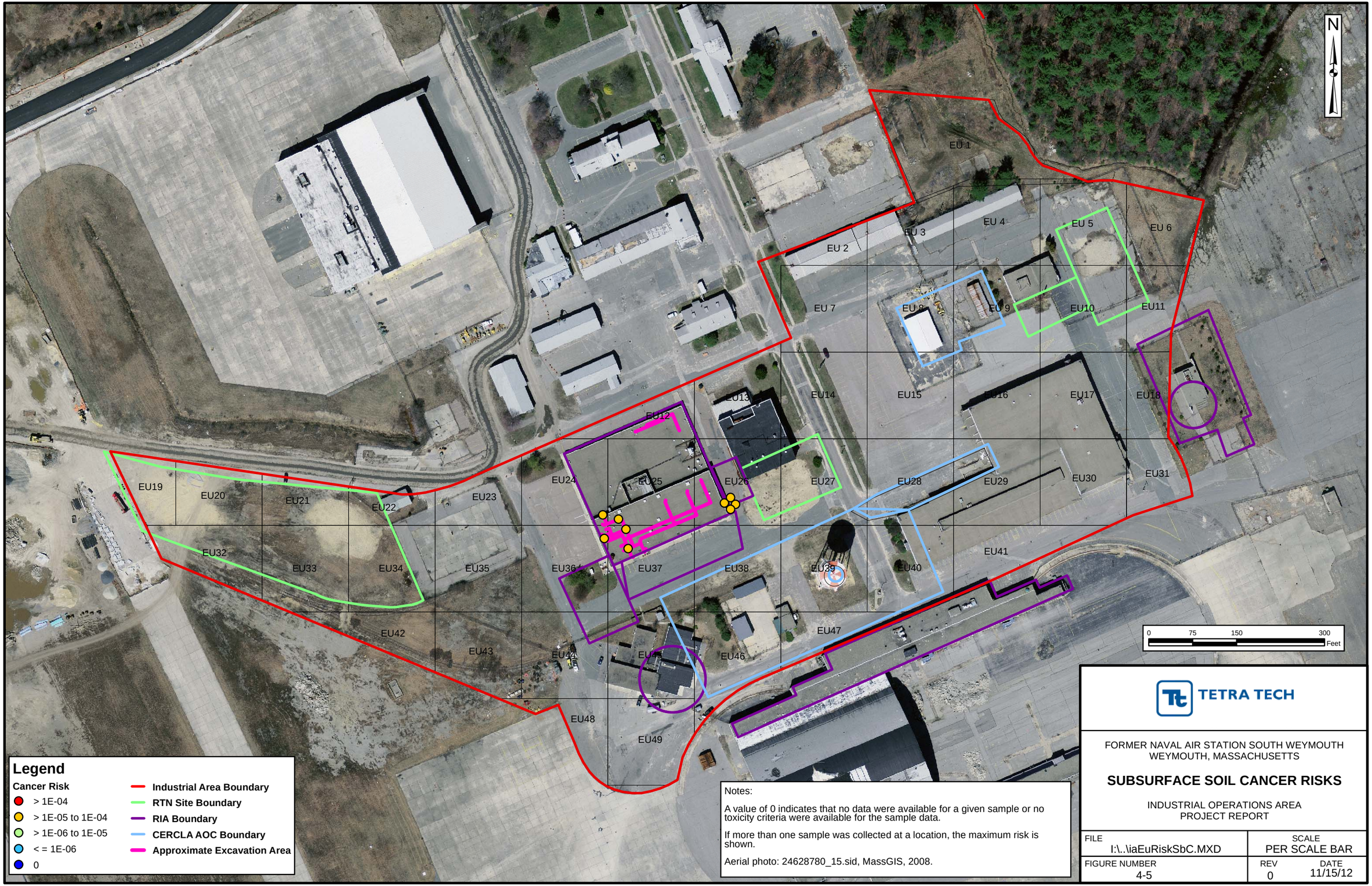
FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SUBSURFACE SOIL NON-CANCER HAZARDS

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\iaEuRiskSbNc.MXD	PER SCALE BAR
FIGURE NUMBER	REV / DATE
4-4	0 / 11/15/12

I:\02073\FI_TM.IOA\PR\iaEuRisk\SbC.MXD DWM 11/15/12



Legend

Cancer Risk

- > 1E-04
- > 1E-05 to 1E-04
- > 1E-06 to 1E-05
- < = 1E-06
- 0

- **Industrial Area Boundary**
- **RTN Site Boundary**
- **RIA Boundary**
- **CERCLA AOC Boundary**
- **Approximate Excavation Area**

Notes:

A value of 0 indicates that no data were available for a given sample or no toxicity criteria were available for the sample data.

If more than one sample was collected at a location, the maximum risk is shown.

Aerial photo: 24628780_15.sid, MassGIS, 2008.

TETRA TECH

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SUBSURFACE SOIL CANCER RISKS

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\iaEuRiskSbC.MXD	PER SCALE BAR
FIGURE NUMBER	REV / DATE
4-5	0 / 11/15/12

I:\02073\AR.HH.IO\AIOA_SURF_SOIL_PRG.MXD DWM 04/16/13

600 300 0 Feet

N

EU 7* EU 8 EU 9 EU10* EU11

EU12 EU13 EU14* EU15 EU16 EU17 EU18

EU23 EU24 EU25 EU26 EU27* EU28 EU29 EU30 EU31

EU35 EU36 EU37 EU38 EU39 EU40 EU41

EU43 EU44 EU45 EU46 EU47

EU48 EU49

SB07-308
AROCLOR-1260

SB07-329
AROCLOR-1260

SS-EU10
AROCLOR-1260

SS-EU17
AROCLOR-1260

SB07-326
AROCLOR-1260

SB07-327
AROCLOR-1260

SB06-002
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
DIBENZO(A,H)ANTHRACENE
INDENO(1,2,3-CD)PYRENE
CHROMIUM

SS-EU29
BENZO(A)ANTHRACENE
BENZO(B)FLUORANTHENE
ARSENIC
CHROMIUM

SB06-005
BENZO(A)ANTHRACENE
BENZO(B)FLUORANTHENE
ARSENIC
CHROMIUM
LEAD

SS06-020
LEAD

SB06-001
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
DIBENZO(A,H)ANTHRACENE
INDENO(1,2,3-CD)PYRENE
CHROMIUM

SB06-007
BENZO(A)ANTHRACENE
BENZO(B)FLUORANTHENE
ARSENIC
CHROMIUM

SS-EU40
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
DIBENZO(A,H)ANTHRACENE
INDENO(1,2,3-CD)PYRENE
CHROMIUM

SB06-006
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
INDENO(1,2,3-CD)PYRENE
ARSENIC
CHROMIUM

SS-EU49
ARSENIC

0 45 90 180 Feet

Notes:
1) Yellow highlighted tags indicate compound exceedances compared to the PRGs
2) EU size is based on a half-acre grid.

Legend

- Historical IOA surface soil sample (PRG or Background Exceedance)
- 2011 Surface Soil Sample (PRG or Background Exceedance)
- Industrial Area Boundary
- High Concentrations Area

TETRA TECH

FORMER NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

SURFACE SOIL CONCENTRATIONS COMPARED TO PRGs AND BACKGROUND VALUES

INDUSTRIAL OPERATIONS AREA
PROJECT REPORT

FILE	SCALE
I:\..\IOA_SURF_SOIL_PRG.MXD	PER SCALE BAR
FIGURE NUMBER	REV / DATE
5-1	0 / 04/16/13

REFERENCES

REFERENCES

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APPENDICES

APPENDIX A

FIELD DATA SHEETS

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU01-
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0		20/20	IOA-SS-EU01-0002 1050		loose	tan	grass 0.0-2.0 SAND (mostly F-m)	SP	Dry	0.0(S)
2					st. dens		Some F & C gravel			0.0(H)
		/	IOA-SS-DUP01 ~~04091~~ 080911 @0006	E.O.B @2' bgs						
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU01	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU02
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
			IOA-SS-EU02-				Drilled 6" under asphalt			
		1.2/1.5	0002			tan	0.0-1.2 SAND (mostly F.)		DRY	0.0(S)
2			1205			grayfan	some F&C gravel			
							cobble 0.3-0.4			
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU02	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU03
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		/	IOA-SS-EU03 -0002		loose	tan/ brown	0.0-0.5 silty f. sand	SM	Dry	0.0(S)
2		/	1105		sl dense		0.5-1.5 same mostly f-m sand	SP	moist	0.0(H)
		/		E 0.B			1.5-2.0 silty f sand w/ iron staining	SM		
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU03 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EV04
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0			IOA-SS-EV04-0002			tan	0.0-0.6 SAND mostly F. w some SP			0.0(S)
2		1.2/1.5	1245			brown gray tone	F&C gravel 0.6-1.2 similar F. sand mostly ironstaing	↓	DRY/moist	0.0(A)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EV04

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU06
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass root matte			
		2.0 / 2.0	IOA-SS-EU06-0002 1130		SI dens	brown	0.0-0.6 si. cly f. sand	FILL	DRY	0.0(S)
2					M. dens	tan	0.6-2.0 SAND mostly f. some f&c gravel	SP		0.0(H)
				2.0 B						

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU06 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION: _____
ELEVATION FROM: _____

BORING NO.: IOA-SB-EU7
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
.		1.0 / 1.5	IOA-SS-EU07-0002 1150		loose	tan brown/ tan	0-0.5 → not included → asphalt ~~0.5 +/-~~ 0.0-1.0 SAND f-m, some c, some F & C gravel	SP	DRY	0.0 (S) 0.0 (H)
2				E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS: _____
OTHER OBSERVATIONS: _____

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU07 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU09
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass roots			
		2.0	IOA-SS-EU09-0002		sl-m	tan	0.0-2.0 SAND (mostly f.) tr.	SP		0.0(S)
2		2.6	Lab QC 1300		dense		Silt, tr-some f-g gravel		Dry	3.9(H)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU09 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: ~~IOA-SB-EU10~~
START DATE: ~~8/10/11~~
COMPLETION: DATE: ~~8/10/11~~
MON. WELL NO.: ~~N/A~~
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		LS/1.5	IOA-SS-EU10-0002 1000		bl dense	dk brown	0.0-0.9 silty f. sand some f-g	SM	Dry/moist	0.0(S)
2						tan orange lt. tan	Cobble 0.9-1.5 SAND mod fly f some m-c	SW		0.0(PP)
		/		E 0.B						
		/								
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		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

BORING NO.: IOA-SB-EU10

Tetra Tech NUS, Inc.

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU12
START DATE: 8/11/11
COMPLETION: DATE: 8/11/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.1 / 1.5	IOA-SS-EU12-0002 0905			tan	0.0-1.1 SAND (f-m) tr. c. sand SP some f & c gravel		dry/moist	0.0 (S)
2										0.3 (H)
		/		EOB						
		/								
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		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU12 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU13
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		1.8 / 20	IOA-SS-EU13-D002 1345			dk brown	0.8-1.1 SAND mostly f-some organics 1.1-1.3 layer of white v. fine sand 1.3-1.8 dk brown f-sand, tr. silt	SW ↓	Dry	0.0 (FID) 0.0 (FID)
2										
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
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		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU13 PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU14
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.5 / 1.5	IOA-SS-EU14-0002 1330		m. dense	tan	0.0-0.5 SAND f-m some f& c gravel	SP	DRY	0.0(S)
2						black gray/tan	0.5-1.5 SAND mostly f some f & c gravel layer of potential coal ash 0.5-0.7			0.0(H)
		/		E.O.B.						
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		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU14 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-E015
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0		~~1.0~~ 1.5 / ~~1.5~~	IOA-SS-E015-0002			tan black tan	0.0-1.5 SAND mostly f. tr. silt m-some f & c gravel		dry	0.0 (S)
2			1320				layer of coal ash 0.3-0.5 (0.8-1.0' bgs)			0.0 (H)
		/	IOA-SS-DUP01 080911 @0000 Dioxin only	E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-E015

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU16
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.5/1.5	IOA-SS-EU16-0002 1025		brown		0.0-0.8 FSAND tr. coarse silt, m sand SP tr. f gravel		moist	0.0 (FID)
2					dk brown		0.8-1.5 SAND mostly f-m c sand layers	1.2-1.4		0.0 (FID)
				E.O.B.						

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU17
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
					loose	brown	0.0-0.5 SAND (f-c) some f-c gravel	SP		0.0(S)
2		1.5/1.5	0910		Al dense	tan	0.5-1.5 SAND mostly f-m tr-some f gravel	↓	pnr	0.0(H)
		/		E.O.B.						
		/								
		/								
		/								
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		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU17	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU19
START DATE: 8/11/11
COMPLETION: DATE: 8/11/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		2.0 / 2.0	IOA-SS-EU19-0002 0845		loose/ loose	dk brown tan	0.0-0.6 fine SAND tr. silt organics 0.6-2.0 SAND (mostly F m) tr. ~~some~~ f & c gravel	SW SP	dry/moist	0.0 (B) 0.1 (H)
2				E.O.B.						
		/								
		/								
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		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU20
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/11/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY:

ELEVATION FROM:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0		1.5 / 3.0	IOA-SS-EU20 0002 0820	-	10000	brown tan	0.0-1.5 SAND F-C ~~tr. silt~~ some f & c gravel	SP	DRY (MOIST)	0.0 (S)
2							tr. silt 0.0-0.3 1.0-1.2 layer of f-m sand			0.1 (H)
		/	*Recollected 8/15/11 @1525	E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	*
OTHER OBSERVATIONS:	Sample jar broken upon arrival at lab recollected 8/15/11

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU20 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU21
START DATE: 8/11/11
COMPLETION: DATE: 8/11/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0		1.6 / 2.0	IOA-SB-EU21-0002 0810	E.o.B.	loose ↓	dk brown then ↓	grass 0.0-0.4 f-m sand organics 0.4-1.6 f-m SAND and gravel some ↓	SP ↓	DRY/moist	0.0(S) 0.0(H)

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

BORING NO.: IOA-SB-EU21

Tetra Tech NUS, Inc.

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU22
START DATE: 8/11/11
COMPLETION: DATE: 8/11/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass/exposed			
		1.9 / 2.0	IOA-SS-EU22-0002 0855			dk brown brown/tan	0.0-0.6 fine sand/tr. silt, organics	SP	DRY/MOIST	0.0 (S)
2							0.6-1.9 SAND mostly F-m some F&C gravel	↓		3.6 (H)
		/		E.O.B.						
		/								
		/								
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		/								
		/								
		/								
		/								
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TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU22 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU23
START DATE: 8/10/11
COMPLETION: DATE: 8/16/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.5/	IOA-SS-EU23-0002		S(dense	tan	0.0-0.5 SAND(F-C)	SP	moist	0.0 (S)
2		1.5	1250		↓	gray/brn	0.5-1.5 Fine Sand - increasing Silt w/depth Tr-some gravel(F)	↓		0.0(W)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU23 PAGE: 1 OF 1

TINUS Form 0018

IOA - SB - EU27

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	~~IOA-EU27-SS-0002~~
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	NA
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							grass			
		1.3/2	IOA-~~EU27-SS-~~ 0002 SS-EU27-		medium		(F-M) silty sand - some c-sand & gravel silt		moist	0.2
2			0820							
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU27 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU28
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							grass			
		2.0	IOA-SS-EU28-0002			gray to orange	0.0-0.4 Fine sand, tr. silt, organics 0.4-1.0 SAND f-c	SW SP		0.0(S)
2		2.0	1355			brown (black) gray to tan	1.0-1.4 SAND f. some silt - spots of coal ash? 1.4-2.0 SAND (f) some f & c gravel	↓	Dry	0.0(H)
				E.O.B.						

TYPE OF DRILLING RIG:	Geoprobe 6620DT	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT	
METHOD OF SOIL SAMPLING:	Acetate Liner	
METHOD OF ROCK CORING:	NA	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU28 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU29
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
		1.5 / 1.5	IOA-SS-EU29-0002		loose	orange tan	0.0-0.4 SAND SF-ML & gravel mostly f SP			0.0(S)
2			1015			gray brown brown	0.4-1.0 SAND mostly f. tr silt some gravel SP 1.5 f & c		DRY	0.0(A)
		/	IOA-SS-DUP02 081011 @0000	E.O.B						
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU29

PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area		BORING NO.: IOA-SB-EU30
PROJECT NO.:	112G02073-FI.FS.IOA		START DATE: 8/10/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown		MON. WELL NO.: N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0			IOA-SS-EU30-0002		sl dense	gray	asphalt (puddle)			0.0(S)
		1.5/1.5				brown	0.0-0.4 Fine sand to some silt & gravel	SP		
2			1045		↓	orange brn	0.4-1 to 2 SAND f-m to some c. sand & gravel	↓	Dry	0.0(FI)
		/		E.O.B.						
		/								
		/								
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		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU30 PAGE: 1 OF 1

TINUS Form 0018

-SB-

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-EU51
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: NA
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
		1.4/1.5	IOA-SS-EU31-0002		loose	tan	asphalt 0.0-1.4 SAND & GRAVEL f-cs sand & gravel	SP	DRY	0.0 (S) 0.0 (H)
2			0900							
		/		E.O.B						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU31 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area		BORING NO.: IOA-SB-EU32
PROJECT NO.:	112G02073-FI.FS.IOA		START DATE: 8/11/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown		MON. WELL NO.: N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0		1.8	IOA-SS-EU32-0002	-	loose	brown tan	0.0-1.8 SAND(F-C) tr. fine gravel 0.0-0.3 tr silt	SP	DRY (moist)	0.0(S)
2		2.0	0825			↓	1.8-2.0 mostly F-m sand	↓		0.0(#)
		/	IOA-SS-DUP01-08111 @0000	E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.:	PAGE: OF

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EV33
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: NA
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = (FID, (PPM))
0							Grass			
		1.6 / 2.0	IOA-SS-EV33-0002 1450		loose	brown	0.0-0.8 SAND F-M, tr. Silt, F gravel	SP	DRY/moist	0.0 (S)
2						tan	0.8-1.6 SAND F-C tr. F gravel	↓		0.0 (H)
		/		E.O.B.						
		/								
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TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EV33 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU34
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	NA
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6" -	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							grass			
		2.0 / 2.0	IOA-SS-EU34-0002		loose	brown gray	0.0-0.1 fine sand organics 0.1-0.7 cobble/rock crusher	SW SP		0.0(S)
2			1445		↓ red	brown orange orange/tn	0.7-2.0 SAND mostly f-m tn & gravel ironstaining	↓		0.1(H)
		/		E.O.B.						
		/								
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		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU34 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU35
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		1.5 / 2.0	IOA-SS-EU35-0002 1235 Lab QC*			brown/tan	0.0-1.5 SAND mostly f-m	SP	moist	0.0 (S)
2						tan	~~Tr Some~~ f & c gravel Some iron staining	↓		0.0 (H)
				E.O.B.						

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU35 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU36
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0		1.5 / 2.0	IOA55-EU36-0002 1225	E.O.B.	loose	dk brown brown lt tan	grass 0.0-0.5 fine sand some si lt organics 0.5-1.5 STAND f-m tr. some SP c. sand & gravel f&c	SP ↓	Dry	0.0 (S) 0.0 (H)

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

BORING NO.: IOA-SB-EU36

Tetra Tech NUS, Inc.

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU37
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: NA
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.5 / 1.5	IOA-SS-EU37-0002 1440		Loose	gray/black	0.0-0.2 SAND F m # some gravel	SP	DRY	0.0(S)
2					↓	black orange tan	0.2-0.6 coal ash 0.6-1.5 SAND F-m some F gravel	SP		0.0(H)
		/		E.O.B.						
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		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU37 PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU38
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
		1.4 / 1.5	IOA-SS-EU38 0002 1426	-		Tan	0.0 – 0.8 SAND (f-m) & gravel	SP		0.0 (S)
2						brown orange	0.8 - 1.4 1.2 Fine sand, tr some gr			0.0 (H)
						Tan	1.2 - 1.4 SAND F-M			
		/		E.O.B						
		/								
		/								
		/								
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		/								
		/								
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TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU38	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area		BORING NO.: IOA-SB-EU39-
PROJECT NO.:	112G02073-FI.FS.IOA		START DATE: 8/9/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown		MON. WELL NO.: N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		1.8 / 2.0	IOA-SS-EU39-0002 1410		loose	brown black	0.0-1.6 SAND (f-m) some f&c gravel	SP	DRY	0.0 (S)
2						tan	1.6-1.8 fine sand tr. silt	SW	moist	0.0 (W)
		/		E.O.B.						
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		/								
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TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU39 PAGE: 1 OF 1

TtNUS Form 0018

-SB

BORING LOG FOR:	Industrial Operations Area		BORING NO.: IOA-EU40
PROJECT NO.:	112G02073-FI.FS.IOA		START DATE: 8/10/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown		MON. WELL NO.: NA
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0		1.2/2	IOA-~~EU40-SS~~ 0002 SS-EU40 0830		soft		grass 0-0.4 - SANDY SILT (F-M) - Trace C-Sand & gravel		dry	0.0
2							0.4-1.2 - SILT, some F-Sand & gravel			
		/		E.O.B.						
		/								
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TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU40 PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU41
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
6			IOA-SS-EU41-0002				asphalt		moist	0.0(S)
2		1.5/1.5	1100			grey	0-0.4-(F)SAND - some gravel & silt 0.4-1.5-(F-C)SAND - some gravel & silt			0.0(H)
		/		E.O.B.						
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TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU41 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU42
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							grass			
		1.7 / 2.0	IOA-SS-EU42 0002 1430			brown ↓	0.0 – 1.2 mostly f. sand tr. silt tr. f & c gravel potential pieces of coal ash (0.9	SP ↓	Dry/moist	0.0 (S)
2						tan/orange	1.2 – 1.7 SAND f-c) some gravel			0.0 (H)
		/		E.O.B						
		/								
		/								
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		/								
		/								
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TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU42 PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU43
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							Grass			
		1.3 / 2.0	IOA-SS-EU43-0002 1405		loose	brown tan	0.0-0.4 fine sand, tr. silt organics 0.4-1.3 SAND mostly f some m-c & gravel (mostly c	SP	DRY	0.0 (A) 0.2 (H)
2				E.O.B.						

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU43 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-EU44
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass lawnmower area			
		1.6 / 2.0	IOA-SS-EU44-0002 1355		s. dense	dk brown orange brown	0.0-0.4 SAND(F) tr. silt organics 0.4-1.4 SAND(F-C) & gravel	SW SP		0.0 (S)
2					↓	tan gray brown	f&c some iron staining 1.4-1.8 mostly f. sand tr. f gravel	SW	DRY	
		/		E.O.B.						
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TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION: _____
ELEVATION FROM: _____

BORING NO.: IOA-SB-EU45
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							grass			
		1.7 / 2.0	IOA-SS-EU45-0002 1310			brown	do -0.9 SAND f-m fr. silt & f. gravel	SP	DRY	0.0(S)
2						black gray	0.9-1.1 v.f. to grain brown sand 1.1-1.4 black f. grain material → coal ash 1.4-1.7 SAND(f-m) & gravel F & C	SW SP		0.0(H)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS: _____
OTHER OBSERVATIONS: _____

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU45

TINUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU46
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0		1.6 / 2.0	IOA-SS-EU46-0002		loose	brown tan	grass 0.0-0.4 fsand, organics tr. silt 0.4-1.6 SAND f-c some gravel mostly f.	SW SP	Dry	0.0 (S)
2			1125		↓	↓		↓		7.3 (H)
		/	IOA-SS-DUP02-081011@0000 for dioxins	E.O.B.						
		/	IOA-SS-DUP03-081011@0000 for PAH, PCBs & metals							
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU46 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION: _____

TRANSCRIBED BY: _____
ELEVATION FROM: _____

BORING NO.: IOA-SB-EU47
START DATE: 8/10/11
COMPLETION: DATE: 8/10/11
MON. WELL NO.: N/A
CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0							asphalt			
		1.4/1.5	IOA-SS-EU47-0002 1115		loose	tan	0.0-1.4 SAND (F-C) & gravel & c rounded-SP	SP	DRY	0.0(S)
2					↓			↓		
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-EU47

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU48
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	TRANSCRIBED BY:	COMPLETION: DATE: 8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
		0.8 /	IOA-SS-EU48-0002			brown	0.0-0.8 SAND mostly F some m-c SP			0.0(S)
2		1.5	1335			↓	and gravel F&C pushed cobble at bottom		DRY	0.0(H)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT	
METHOD OF SOIL SAMPLING:	Acetate Liner	
METHOD OF ROCK CORING:	NA	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU48 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-EU49
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/10/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/10/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
		1.3/1.5	IOA-SS-EU49-0002		M dense	tan/grayish	0.0-0.3 - SAND f-c)	SP		0.0(S)
2			1320				0.3-1.3 SAND mostly f-m some f&c gravel SA	↓	PRY	0.0(H)
		/		E.O.B.						
		/								
		/								
		/								
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT	
METHOD OF SOIL SAMPLING:	Acetate Liner	
METHOD OF ROCK CORING:	NA	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS:		BORING NO.: IOA-SB-EU49 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-~~SB~~ R1A33-SB01
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/15/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/15/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
1		/					No soil classification 0-3' bgs			
2							Excavated → Backfill			
3		/					sand & gravel material			
4		0.4/2.0			loose	dk brown	0.0-0.4 SAND (F-c) & gravel (mostly c.)	SP	moist	0.0(J)
5		/	1130		↓			↓		14.7(H)
6		1.5/2.0				tan	0.0-1.1 SAND (mostly F-m) some f & c gravel		moist	0.0(J)
7		/	1133		↓	~~Tt tan~~ dk brown red-orange	1.1-1.5 SAND (mostly F-m) trsilt	↓	~~SATURATED~~	0.0(H)
8		1.3/2.0			sh dense	grayish	0.0-1.3 FINE SAND trsilt		~~WET~~ SAT.	0.0(S)
9		/	1145		↓	↓			~~WET~~ SAT	
		/		E.O.B. @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	Ran PetroFLAs analysis on all field samples 5' north of previous confirmation sample location

Tetra Tech NUS, Inc.

BORING NO.: IOA-R1A33-SB01 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-~~S~~ RIA33-SB02
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/15/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/15/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY:

ELEVATION FROM:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
1		/					No soil classification 0-3'bgs			
2							Backfill material			
3		/					sand & gravel			
4		1.0/2.0			loose	~~dk~~ brown	0.0-1.0 SAND (mostly f-m)	SP	Moist	0.0(s)
5		/	1215		↓	↓	some f & c gravel	↓		0.0(tf)
6		0.7/2.0	IOA-SO-RIA33-SB02-0507 @ 1425 *		St. dense	gray ~~brown~~	0.0-0.7 SAND (mostly f-m)		moist/damp	0.0(s)
7		/	1220			tan orange	tr-some gravel (f & c) 0.3-0.4 layer of brown silty f sand			0.1(tf)
8		1.5/2.0				tan black orange red	0.0-0.1 SAND (f-m)	SD	~~wet~~ WET	0.0(s)
9		/	1225			gray brown	0.7-1.5 very f sand tr. silt	SW	SATURATED	
		/		E.O.B. @ 9'bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	Run PetroFLAG analysis on all field samples

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB02 PAGE: 1 OF 1

TtNUS Form 0018

* Collected sample from adjacent boring after PetroFLAG results
Previous confirmation sample location

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-R1A33-3803
START DATE: 8/15/11
COMPLETION: DATE: 8/15/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
1										
2		/								
3										
4		1.0/			loose	tan	0.0-1.6 SAND (FM) some F&	SP	dry/moist	0.0(S)
5		2.0	1245		↓	olive brown black	gravel 0.5-1.0 coal ash? mixed in	↓		0.1(H)
6		0.8/				↓	0.0-0.2 similar to above		~~moist~~	0.0(S)
7		2.0	1250		↓	orange/ tan	0.2-0.8 SAND F-M tr. F& gravel	↓	DRY	0.1(H)
8		1.2/			moderate	grayish	0.0-1.2 FINE SAND, tr. silt	SW	SATURATED	0.0(S)
9		2.0	1255		↓	↓	some iron staining 0.0-0.2	↓		
		/		T.O.B @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Ran PetroFLAG analysis on all field samples 5' south of previous confirmation sample location

Tetra Tech NUS, Inc.

BORING NO.: IOA-R1A33-3803 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-R1A33-SB04
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0										
1							No Soil logging 0-3' bgs			
2		/					→ Backfill → sand & gravel material			
3										
4		1.2/2.0	IOA-SO-R1A33-SB04-0305@1310 *		loose	tan	0.0-1.2 SAND (f-c) & gravel (mostly f SR-SA)	SP	DRY	0.0 (S)
5			0800		↓	↓	dk grey 0.1-0.3	↓		0.0 (H)
6		1.4/2.0					0.0-1.4 SAND mostly f.-m tr.-some c. Sand		DRY	0.0 (S)
7			0805		↓	↓		↓		0.0 (H)
8		1.5/2.0		▽	M. dense	orange gray tan	0.0-0.3 SAND (f-m) 0.3-1.5 SAND (f) tr.-some silt	SP SW	moist saturated	0.0 (S)
9					dense		↓	↓		0.0 (H)
		/		E.O.B. @9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: * Sample collected for lab analysis on 8/15/11 from separate boring

Tetra Tech NUS, Inc.

BORING NO.: IOA-R1A33-SB04 PAGE: 1 OF 1

TtNUS Form 0018

Run PetroFLAG analysis on all samples in field 5' west of previous confirmation sample location

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-R1A33-SB05
START DATE: ~~8/8/11~~ 8/9/11
COMPLETION: DATE: ~~8/8/11~~ 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
1							No soil logging 0-3' bgs			
2		/					→ backfill material sand & gravel			
3										
4		1.6			loose	tan	0.0-1.6 SAND(F-c) FF&C	SP	DRY	0.0(S)
5		/2.0	0730		↓	↓	rounded-SA gravel	↓		0.0(H)
6		1.6			↓	↓	0.0-1.6 SAND mostly F-m	↓	DRY	0.0(S)
7		/2.0	0740		↓	↓	tr. c. sand tr. F gravel - 1.3 layer of c. sand iron stained	↓		<1(H)
8		1.1		R	m. dense	~~grey~~ brown	0.0-0.2 silt at to about iron stained		DAMP	0.0(S)
9		/2.0	0745		↓	gray tan	0.2-1.1 silty f. sand		SATURATED	0.0(H)
		/		E.O.B. @ 9' bgs						
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Ran PetroFLAG analysis on all samples in field & previous confirmation sample location

Tetra Tech NUS, Inc.

BORING NO.: IOA-R1A33-SB05 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-RIA33-SB06
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/8/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/8/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	NA
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
1										
2										
3										
4		1.3/			loose	tan orange tan	0.0-0.8 SAND (f-c) & gravel (f&c) 0.8-1.3 SAND (f-c)	SP	DRY	0.0(S)
5		2.0	1530			tan	~~te mostr~~ some f gravel ironstaining 0.8-1.1			0.0(H)
6		1.6/					0.0-1.6 SAND (f-c) some f &		DRY	0.0(S)
7		2.0	1540				c gravel SR-SA ironstaining @ 1.4			0.0(H)
8		1.0/		▽ - -		brown	0.0-0.6 SAND f-m) tr.-some c.		DRY WET	0.0(S)
9		2.0			dense	gray	0.6-1.0 silty f sand		SATURATED	<1(H)
				E.O.B. @ 9' bgs						

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	5' south of confirmation sample Ran PetroFLAG analysis on all field samples

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB06 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-RIA33-SB07
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/8/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/8/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
1		/					No soil logging 0-3' bgs			
2							Backfill material sand & gravel			
3		/					↓			
4		1.3/2.0			loose	~~black~~ tan	0.0-1.3 SAND(f-c) & gravel	SP	DRY	0.1(S)
5		/	1510		↓	↓	f&c black band 0.3	↓		<1.0(H)
6		1.4/2.0			↓	↓	0.0-~~1.4~~ 1.0 SAND(f-c) fr. & gravel	↓		0.1(S)
7		/	1515		↓	gray/tan	1.0-1.4 SAND(f-m)	↓	DRY	0.0(H)
8		1.1/2.0			↓	↓	0.0-1.0 similar to above		dry moist	0.0(S)
9		/	1525	▽	dense	orange tan	1.0-1.1 silty f. sand iron staining		WET	0.0(H)
				E.O.B. @9' bgs			0.8 & 1.0			
		/								
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:	5' North of confirmation sample	BORING NO.: IOA-RIA33-SB07	PAGE: 1 OF 1

Ran PetroFLAG analysis on all field samples

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-R1A33-SB08
START DATE: 8/8/14
COMPLETION: DATE: 8/8/14
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
1							No soil logging 0-3' bgs			
2		/					Backfill → sand & gravel			
3										
4		0.7/2.0	IOA-SO-R1A33-SB08-0305@1320*		loose	brown	pushed cobble SAND (F-C) some f. gravel	SP	DRY	0.0(S)
5		/	1440		↓	↓		↓		<1.0(H)
6		1.5/2.0				tan	SAND 0.0-1.5 (f-m, mostly) tr c sand		dry	0.0(S)
7			1445			light tan	tr F gravel 0.8-1.0 layer of coarser material			<1(H)
8		1.3/2.0		▽		gray tan	0.0-1.3 SAND mostly f-m)		dry	0.0(S)
9			1455				dk brown band 0.3		WET	<1(H)
				E.O.B @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: previous confirmation sample location

Tetra Tech NUS, Inc.

BORING NO.: IOA-R1A33-SB08 PAGE: 1 OF 1

TtNUS Form 0018

* Sample collected for lab analysis on 8/15/14 from separate boring
Ran PetroFLAG analysis on all samples

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-R1A33-SB09
START DATE: 8/8/11
COMPLETION: DATE: 8/8/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0										
1							No soil logging 0-3' bgs			
2		/					Backfill ⇒ sand & gravel			
3										
4		1.5/20			loose	gray tan (light)	0.0-1.5 SAND & gravel f-m sand, some c. sand & f & c gravel	SP		0.0 (S)
5			1405		↓	↓		↓	DRY	0.1 0.8 (H)
6		1.3/20			loose	tan	0.0-0.3 SAND (f-m) 0.3-1.3 SAND (f-c)	SP	DRY	0.0 (S)
7			1415		↓	↓	↓	↓		<1.0 (H)
8		1.2/			loose	tan/gray tan	0.0-1.2 SAND (f-m) dk gray sand 0.1		DRY	0.0 (S)
9		/20	1425	▽ - - -	↓	↓		↓	moist @ WCT ATTIP	0.0 (H)
				E.O.B. @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Ran Petroflag analysis on collected field samples 5' South of previous conf. sample location

Tetra Tech NUS, Inc.

BORING NO.: RIA IOA-R1A33-SB09

PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA ~~SR~~ RIA33-SB10
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/8/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/8/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	NA
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY:

ELEVATION FROM:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
1		/					No sample → sand & gravel			
2							backfill from excavation			
3										
4		1.1/2.0	IOA-SD-RIA33-SB10-0305@1340*		loose	brown	0.0-1.1 Sand (f-c) & gravel (mostly f)	SP	Dry	0.0(S)
5			~~IOA-SD-UP05 0315~~ 1215		↓	↓	* coal ash noted 8/15/11	↓		0.8(H)
6		1.0/2.0	Lab QC		↓	reddish brown	0.0-0.3 similar to above	↓	Rig dropped @ ~6' → void?	0.0(S)
7			1220		↓	light tan	iron staining 0.3 0.3-1.0 sand ~~f-c~~ (mostly f-m)	↓	Dry	1.1(H)
8		0.2/2.0			↓	light brown	0.0-0.2 similar to above - pushed	↓	DRY	0.0(S)
9			1225	▽	↓	↓	~ cobble	↓		0.9(S)
10		1.9/2.0			dense	gray tan	0.0-0.2 similar to above 0.2-2.0 silty f. sand	SP SM	SATURATED	0.0(S)
11			1235		↓	↓	↓	↓		0.1(H)
				E.O.B @ 11 ft bgs						
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	* Sample for lab analysis collected on 8/15/11 from ~~sep~~ new boring Ran PETROFLAG analysis on all samples 5' east of previous conf. sample location

Tetra Tech NUS, Inc.

BORING NO.: IOA RIA33-SB10

PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-SB-RIA33-SB11
START DATE: 8/8/11
COMPLETION: DATE: 8/8/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0										
1							No soil logging 0-3 → excavation backfill → sand & gravel			
2		/								
3										0.0 (S)
4	~~WST~~	1.5/2.0			loose	tan	0.0-1.0 SAND f-m & gravel mostly f. SR-SA	SP	DRY	0.0 (H)
5	~~12.0~~	/	1300		↓	↓	1.0-1.5 SAND - f-c	↓	moist	~~0.0~~ 0.2 (S)
6		1.6/			↓	↓	0.0-1.0 similar to above	↓		0.0 (H)
7		/2.0	1305		↓	↓	1.0-1.6 less coarse sand	↓	DRY	~~0.0 (S)~~
8		1.5/		▽	↓	light tan	0.0-1.1 SAND (f-m)			0.0 (S)
9		/1.0	1315		↓	orange	1.1-1.5 similar → more coarse material		WET	
		/		E.O.B @ 9' bgs						
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: previous confirmation sample
Run PetroFLAG analysis on all field samples

Tetra Tech NUS, Inc.

BORING NO.: ~~IOA-SB-RIA33-SB11~~ PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-RIA33-SB12
START DATE: 8/8/11
COMPLETION: DATE: 8/8/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0										
1		/					No soil logging 0-3' bgs			
2							→ backfill sand & gravel			
3										
4		M/ 2.6			loose	tan	0.0-1.0 SAND (f-c) & f&c gravel	SP	DRY	0.0(S)
5			1335				1.0-1.6 SAND f-c) some gravel			0.0(H)
6		1.6/ 2.9				tan	0.0-0.2 Sand · Mostly f		DRY	0.0(S)
7			1345			gray tan	0.2-1.6 SAND (f-c) f. f. gravel			<LOC(H)
8		1.4/ 2.6		D		~~orange~~	0.0-0.9 SAND MOSTLY F-M			0.0(S)
9			1350		dense	orange gray tan	0.9-1.1 increasing c. material (SAND) 1.1-1.4 silty f. sand	SM	WET SATURATED	OEX(H)
				E.O.B. @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: 5' west of SB11 → in separate room
Ran PetroFlag on all field samples

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB12
PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-RIA33-SB13
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
0										
1		/								
2										
3										
4		0.9/2.0			loose	gray	0.0-0.9 SAND f-m some C.	SP	DRY	0.0(S)
5			0830		↓	↓	tr-some f & c SA gravel	↓		0.0(H)
6		1.3/2.0			↓	black tan	0.0-0.6 similar to above - black staining?	SP	DRY	0.0(S)
7			0835		↓	light tan	0.6-1.3 SAND mostly f-m	↓		0.0(H)
8		1.9/2.0			loose to dense	orange gray tan	0.0-0.4 similar to above iron stain	SP SW	moist SATURATED	0.0(S)
9			0845		↓	↓	0.4-1.9 SAND (f) tr.-some silt	↓	WET	0.0(H)
		/		E.O.B. @ 9' bgs						
		/								
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: 5' east of previous confirmation sample
Ran PetroFLAG analysis on all field samples

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB13 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-RIA33-SB14
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = (FID, (PPM))
0										
1		/					No soil logging 0-3' bgs			
2							excavated > back fill material			
3							sand & gravel			
4		1.0/			loose	black/ orange/tan	0.0-1.0 SAND (F-C) tr.-some f. SA gravel	SP	DRY	0.0(S)
5		2.0	0900		↓	↓	possible coal ash? OS → very little	↓		0.1(H)
6		1.2/	IOA-SO-RIA33-SB14-050711@1400		loose	black tan	0.0-0.2 → coal ash? black f. grain	SP	DRY	0.0(S)
7		2.0	IOA-SO-DUP05-050711@0000		↓	↓	0.2-1.2 SAND (F-C) mostly f.-m	↓		0.0(H)
8		1.5/	0905 (8/9/11)	▽	loose	tan	0.0-0.3 similar to above iron staining	SP	moist (damp	0.0(S)
9		2.0	0915		medium dense	gray/tan	0.5-1.0 FINE SAND tr. silt		SATURATED WET	00.0(H)
				E.O.B @9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS: ran PetroFLAG analysis on all samples
OTHER OBSERVATIONS: previous confirmation sample location
Sample for lab analysis collected on 8/9/11 from adjacent boring location

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB14 PAGE: 1 OF

TtNUS Form 0018

BORING LOG FOR: Industrial Operations Area
PROJECT NO.: 112G02073-FI.FS.IOA
LOGGED BY: J. Traut
DRILLED BY (Company/Driller): MAI/S. Brown
GRD. SURFACE ELEVATION:

TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: IOA-RIA33-SB15
START DATE: 8/9/11
COMPLETION: DATE: 8/9/11
MON. WELL NO.: N/A
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [FID, (PPM)]
1							No soil logging 0-3' bgs			
2		/					Backfill material sand & gravel			
3							↓			
4		0.9/			loose	gray/ black	0.0-0.9 SAND (f-m mostly) &	SP	DRY	0.0 (S)
5		2.0	0925		↓	↓	gravel f-& c cobble @ 0.7	↓		0.0 (H)
6		0.8/			↓	tan/ rock tan	0.0-0.8 SAND (mostly f-m)	SP	DRY	0.0 (S)
7		2.0	0935		↓	light tan	& quartz pieces 0.0-0.3 large cobble (0.1) @ 0.3	↓		0.0 (H)
8		1.5/		▽	loose dense	tan	0.0-0.3 similar to above	SP	SATURATED	0.0 (S)
9		2.0	0945		↓	↓	0.3-1.5 FINE SAND in silt	SW ↓		0.0 (H)
		/		EOB @ 9' bgs						
		/								
		/								
		/								

TYPE OF DRILLING RIG: Geoprobe 6620DT
METHOD OF ADVANCING BORING: DPT
METHOD OF SOIL SAMPLING: Acetate Liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: 5' worth of previous confirmation sample
Ran PetroFLAG analysis on all field samples

Tetra Tech NUS, Inc.

BORING NO.: IOA-RIA33-SB15 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB RIA82-01A
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0										
		2.4/4.0			loose -	gray	ashphalt 0.4-2.4 SAND mostly f-m	SP	DRY	0.0(S)
2					sl dense		some f & c gravel rounded - SA			
							layer of silty f. sand 1.3-1.4			
4			1518							
		3.1/4.0			loose	grayton tan	0.0-2.3 SAND (f-c) tr.	SP	DRY	0.0(S)
6			RIOA-SD-RIA82-01A-0608 to lab				some f & c gravel			
			Petroflag sample				some iron staining throughout			
8			1525	▽		grayton	2.3-3.1 SAND (f-m)	SP	WET	
		2.0/2.0	Petroflag sample				0.0-1.6 SAND mostly f-m tr. c. sand	SP	wet	0.0(S)
10							1.6-2.0 silty f sand	SM	SATURATED	
				E.O.B. @ 10' bgs						

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-RIA82-01A

PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-R1A82-02A
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/11/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0						gray	0.0-0.4 Asphalt 0.4-1.2 SAND (F-C) some f&c gravel	SP	moist	0.0(S)
2		2.7/4.0			dense	brown	1.2-1.5 mostly f. sand some silt & gravel	SP	WET	
						tan	1.5-2.7 SAND mostly F-m		DRY	
4			0930				~~tr some~~ and gravel (F&C)			
							0.0-0.7 similar to above			
6		3.4/4.0			sh dense		0.7-~~1.2~~ 2.3 SAND f-c layer of fine iron staining 1.6-1.8 1.4-1.6		moist	0.0(S)
8			0608 → PetroFLAG IOA-SO-R1A82-~~04~~02A-0935 0608			gray tan	~~1.2~~ 2.3-3.4 FINE SAND	SW	moist	0.0(S)
		2.0/2.0	0810 → PetroFLAG			tan	0.0-1.0 SAND f-m		WET	0.0(S)
10						gray tan	1.0-2.0 VERY FINE SAND tr. silt	SW	SATURATED	
				E.O.B. @10' bgs						

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-R1A82-02A PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-RIA82-03A
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/11/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY:

ELEVATION FROM:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							Sidewalk next to B117			
					sl-m	gray → ~~sl~~ concrete crushed dk brown	0.0-1.7 SAND mostly f-m	SP		0.0(S)
2		1.7/4.0			dense	↓	some c some f & c rounded - SA gravel	↓	moist	
					↓		Potential coal ash 0.7-0.8 & 1.6-1.7 → thin lenses	↓	moist	0.0 (S)
4			~~08~~ 0950		↓	dk tan		↓		
		2.3/4.0			↓	tan	0.0 - 0.5 similar to above	↓		0.0(S)
6			IOA-SO-RIA82-03A-0608 to lab		↓		0.5-1.3 SAND f-c ironstaining →	↓	moist	
		/	0608 → Petroflag		↓	orange	1.0-1.4 → coarser material	SW	↓	
8			0955		↓	gray/tan	1.4-2.3 FINE SAND some coarsers and 1.7-2.0	SW	↓	0.0(S)
		1.8/2.0	0810 → Petroflag		↓	↓	0.0 ~~1.8~~ 1.1 SAND f-m) ironstaining 0.8-2.0	SP	WET	0.0(S)
10			1005		↓	↓	1.1-~~2~~.8 very fine SAND tr silt	SW	SATURATED	
		/		E.O.B.						
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-RIA82-03A PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-RIA82-04A
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/11/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0							asphalt			
					m. dens	gray brown black	0.0-0.2 asphalt 0.2-1.5 SAND (F-m) & gravel (F&C)	SP	Dry	0.0(S)
2		2.6/4.0				black/tan	mixed with coal ash layers 1.5-2.6 SAND mostly F-m			
						tan	sand F&C gravel			
4			1030							
		2.9/4.0				black tan	0.0-0.2 coal ash 0.2-2.0 SAND (F-C) 2.0-2.9 SAND F	SP	Moist	0.0(S)
6			IOA-SD-RIA82-04A-PetroFlag 0608 0608 @1035 to lab							
		/						SW		
8			1035						WET	
		1.7/2.0	0810 - PetroFLAG			gray tan	0.0-0.9 SAND (F-m) iron staining 0.6-0.9	SP	WET	0.0(S)
10							0.9-1.7 very fine sand tr. silt	SW	SATURATED	
		/		E.O.B.						
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-RIA82-04A PAGE: 1 OF 1

TINUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-SB06-011
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/9/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/9/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0		2.5			loose	brown	0.0-1.2 SAND mostly f-m & gravel + f&c - piece of brick?	SP	Dry	0.0(S)
2					dense		1.2-1.7 fine sand tr-some silt some gravel	SM	moist	
		4.0					1.7-2.5 mostly F SAND some f	SP		
4			1452			tan	f&c gravel		Dry	
		3.1 / 4.0			loose	tan	0.0-~~3.1~~ 2.5 SAND-(f-c)			0.0(S)
6							iron staining 2.3			
						~~Grayton~~	2.5-3.1 mostly F SAND tr.-some m.	SW		
8			1458	▽	dense	Grayton			WET	
		2.0 / 2.0	Petro FLAG Sample 1506				0.0-1.8 SAND(f-m) iron staining ~~1.4~~ 1.4-1.8	SP	SATURATED	0.0 (S)
10							1.8-2.0 fine sand tr. silt	SW		
				E.O.B. @10' bgs						

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	previous sample SB06-011

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-SB06-011 PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Industrial Operations Area	BORING NO.:	IOA-SB-R1A82-01B
PROJECT NO.:	112G02073-FI.FS.IOA	START DATE:	8/11/11
LOGGED BY:	J. Traut	COMPLETION: DATE:	8/11/11
DRILLED BY (Company/Driller):	MAI/S. Brown	MON. WELL NO.:	N/A
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID, (PPM)]
0					dense	black tan/brown	0.0-0.2 asphalt 0.2-2.4 SAND(F-C) coal ash layer 0.4-0.6	SP	DRY (moist)	0.0(S)
2		2.4/4.0			↓	↓	sand gravel F&C	↓		
							tr. silt 1.1-1.3			
4			1050		↓	↓	some iron staining	↓		
		2.9/4.0			st dense	tan	0.0-1.2 SAND F-C & gravel F&C	SR	DRY	0.0(S)
6					↓	↓	1.2-~~2.2~~ 2.5 SAND(F-C)	↓		
		7 /				orange	↓			
8			1130		↓	grayish ↓	2.5-2.9 FINE SAND	~~SR~~	moist/damp	
		1.4/2.0	0810 Petrof LAG 1115		m dense	gray	SAND 0.0-1.4 (f-m) iron staining 1.3-1.4	SP	WET	0.0(S)
10					↓	↓	↓	↓		
		/		E.O.B.						
		/								
		/								

TYPE OF DRILLING RIG:	Geoprobe 6620DT
METHOD OF ADVANCING BORING:	DPT
METHOD OF SOIL SAMPLING:	Acetate Liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	~~Had to~~ No recovery 4-8 1st time 4-8 log/sample from different boring

Tetra Tech NUS, Inc.

BORING NO.: IOA-SB-R1A82-01B PAGE: 1 OF 1

TtNUS Form 0018

PetroFLAG®

Hydrocarbon Test Kit - Field Data Sheet

Date: 8/8/11
Operator: M. Horton
Location: Weymouth IOA

Calibration Time/Date: 8/8/11 1400 / 8/9/11 0823
Calibration Temperature: 26.6 1400 / 24.4
B=0 / B=0
S=1000 / S=1000

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF[1]	RF[2]	Actual (ppm)	Comments
1	SB06-0305	10.0	1630 8/8	81	1	5	81	
2	SB06-0507	10.0	↓	56	1	5	56	
3	SB06-0709	16.0	↓	84	1	5	84	
4	SB-DUP01-080811	10.1	↓	103	1	5	103	SB06-0709
5	SB05-0305	10.1	0825 8/9	86	1	5	86	8/9/11 calibration
6	SB05-0507	10.0	↓	72	1	5	72	
7	SB05-0709	10.0	↓	0	1	5	0	
8	SB04-0305	10.1	1010	216	1	5	216	
9	SB04-0507	10.0	↓	24	1	5	24	
10	SB04-0709	9.9	↓	1	1	5	1	
11	SB13-0305	10.1	↓	292	1	5	292	
12	SB13-0507	10.0	↓	125	1	5	125	
13	SB13-0709	10.1	↓	21	1	5	21	
14	SB14-0305	10.0	↓	144	1	5	144	
15	SB14-0507	9.9	1102	1272	1	5	1272	Recalibrate
16	SB14-0709	10.0	↓	38	1	5	38	
17	SB15-0305	10.0	↓	296	1	5	296	
18	SB15-0507	10.0	↓	87	1	5	87	
19	SB15-0709	10.1	↓	57	1	5	57	
20	SB-DUP02	10.1	1106	1184	1	5	1184	SB14-0507

8/9/11 Temp 25.2 B=0
Recalibrate Time 1100 S=1000

[1]DF = Dilution Factor, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

[2]RF = Response Factor, selected for the hydrocarbon contamination at the site.

PetroFLAG®

Hydrocarbon Test Kit - Field Data Sheet

Date: 8/8/11
Operator: M. Horton
Location: Weymouth IOA

Calibration Time/Date: 1255 8/8/11
Calibration Temperature: 25.4 26.4 1430
B=0 B=0
S=1000 S=1000

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF[1]	RF[2]	Actual (ppm)	Comments
1	SB10-0305	10.0	1325/8/8	221	1	5	221	
2	SB10-0507	10.0	↓	21	1	5	21	
3	SB10-0709	10.0	↓	183	1	5	183	
4	SB10-0911	10.1	↓	63	1	5	63	
5	SB11-0305	10.1	1357 8/8	91	1	5	91	
6	SB11-0507	10.0	↓ 8/8	140	1	5	140	
7	SB11-0709	10.1	↓ 8/8	149	1	5	149	
8	SB12-~~0507~~ 0305	10.1	1424 8/8	187	1	5	187	
9	SB12-0507	10.0	↓ ↓	98	1	5	98	
10	SB12-0709	10.1	↓ 8/8	99	1	5	99	
11	RE-CALIBRATE							
12	SB09-0305	10.1	1500 8/8	101	1	5	101	
13	SB09-0507	10.0	↓	78	1	5	78	
14	SB09-0709	10.0	↓	61	1	5	61	
15	SB08-0305	10.1	1525	268	1	5	268	
16	SB08-0507	10.0	↓	89	1	5	89	
17	SB08-0709	10.0	↓	48	1	5	48	
18	SB07-0305	10.0	1355	131	1	5	131	
19	SB07-0507	10.1	↓	55	1	5	55	
20	SB07-0708	9.9	↓	28	1	5	28	

RF=5

[1]DF = Dilution Factor, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

[2]RF = Response Factor, selected for the hydrocarbon contamination at the site.

PetroFLAG®

Hydrocarbon Test Kit - Field Data Sheet

Date: 8/9/11
Operator: M. Horton
Location: Weymouth IOA

Calibration Time/Date: 8/9/11 1100 / 8/11/11 1050
Calibration Temperature: 25.2 / 23.8
B=0
S=1000

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF[1]	RF[2]	Actual (ppm)	Comments
1	SB06-011-0810	10.0	1605 8/9	73	1	5	73	
2	SB01A-0608	10.0	↓	47	1	5	47	
3	SB01A-0810	10.1	↓	73	1	5	73	
4	SB02A-0608	9.9	1050 8/11	18	1	5	18	
5	SB02A-0810	9.9	↓	29	1	5	29	
6	SB03A-0608	10.1	↓	23	1	5	23	
7	SB03A-0810	10.0	↓	31	1	5	31	
8	SB04A-0608	10.1	1200	30	1	5	30	
9	DUP03	10.0		42	1	5	42	04A-0608
10	SB04A-0810	10.1		49	1	5	49	
11	~~SB05A-0608~~							
12	~~SB05A-0810~~				1			
13	SB01B-0608	10.1		30	1	5	30	
14	SB01B-0810	10.0		42	1	5	42	
15								
16								
17								
18								
19								
20								

[1]DF = Dilution Factor, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

[2]RF = Response Factor, selected for the hydrocarbon contamination at the site.

PetroFLAG®

Hydrocarbon Test Kit - Field Data Sheet

Date: 8/15/2011
Operator: A. Carey
Location: NAS Weymouth

Calibration Time/Date: 8/15/11 ~8 am
Calibration Temperature: 23.6 °C

No.	Sample ID	Weight	Time/Date	Reading (ppm)	DF[1]	RF[2]	Actual (ppm)	Comments
1	Test	10.1	8 / 8/15	126	—		126	
2	SB01-0305	10.1	1202 / 8/15	266				
3	SB01-0507	10.2	1204 / 8/15	54				
4	SB01-0709	10.2	1207 / 8/15	20				
5	SB02-0305	10.7	1235 / 8/15	356				
6	SB02-0507	10.6	1238 / 8/15	403				
7	SB02-0709	10.5	1241 / 8/15	37				
8	SB03-0305	10.4	1311 / 8/15	279				
9	SB03-0507	10.6	1314 / 8/15	228				
10	SB03-0709	10.4	1316 / 8/15	18				
11	Calibrate	—	1415 / 8/15	2003				24.0 °C
12	SB04-0305	10.3	1417 / 8/15	29				
13	SB08-0305	10.4	1419 / 8/15	45				
14	SB10-0305	10.3	1423 / 8/15	163				
15	SB14-0507	10.4	1425 / 8/15	61				
16	DUP	10.3	1454 / 8/15	170				SB02-0507
17	SB02-0507	10.4	1456 / 8/15	192				recollected w/ analytes
18								
19								
20								

[1]DF = Dilution Factor, e.g., for 5 gram soil sample DF=10g/5g=2, and actual concentration equals reading times DF (reading (ppm) x DF = actual concentration).

[2]RF = Response Factor, selected for the hydrocarbon contamination at the site.

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 4

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech

PROJECT NAME: Industrial Operations Area | PROJECT #: 112G02073/CTOWE11 | QUOTE #:

SAMPLING LOCATION (STATE or COUNTRY): MA

SPECIAL INSTRUCTIONS / COMMENTS:

REPORT TO: P. Call / L. Guzman

COMPANY: TetraTech

ADDRESS: 250 Andover St Suite 200

CITY, STATE, ZIP: Wilmington MA 01887

PHONE: 978-474-8400

EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.Call@tetratech.com Lucy.Guzman@tetratech.com

BILL TO: P.O. #

COMPANY: see lab spec

ADDRESS:

CITY, STATE, ZIP

SAMPLER'S PRINTED NAME: Johanna Traut

SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	PCBs	Metals	pH Acceptable? Y N N/A	COMMENTS
1	IOA-SS-EU01-0002	8/9/11	1050	S	3	3							1	1	1		DUP01 (PAHs/PCBs/metals)
2	IOA-SS-EU03-0002		1105		3	3							1	1	1		
3	IOA-SS-DUP01-080911		0000		3	3							1	1	1		DUP01 (PAHs/PCBs/metals)
4	IOA-SS-EU07-0002		1150		2	2							1	—	1		
5	IOA-SS-EU02-0002		1205		3	3							1	1	1		
6	IOA-SS-EU04-0002		1245		3	3							1	1	1		
7	IOA-SS-EU09-0002		1300		7	7							3	2	2		LabQC (PAHs/PCBs/metals)
8	IOA-SS-EU06-0002		~~1300~~ 1130		3	3							1	1	1		
9	IOA-SS-EU14-0002		1330		1	1							1	—	1		
10	IOA-SS-EU13-0002		1345		3	3							1	1	1		

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/10/11	1700	to FedEX		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

MATRIX CODES: A = AIR; SD = SOLID; DW = DRINKING WATER; SL = SLUDGE; GW = GROUNDWATER; SV = SOLVENT WASTE; L = LIQUID; W = WATER; O = OIL; WP = WIPE; WW = WASTE WATER; SW = SURFACE WATER; S = SOIL

CHAIN OF CUSTODY RECORD

PAGE: 2 OF: 4

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: Tetra Tech, NUS

REPORT TO: P. Call

BILL TO: P.O. #

PROJECT NAME: Industrial operations Area | PROJECT #: 112602073/CTONE11 | QUOTE #:

COMPANY: TetraTech

COMPANY: Del laboratories

SAMPLING LOCATION (STATE or COUNTRY): MA

ADDRESS: 250 Andover St, Suite 200

ADDRESS:

SPECIAL INSTRUCTIONS / COMMENTS:

CITY, STATE, ZIP: Wilmington, MA 01887

CITY, STATE, ZIP

PHONE: 978-474-8400

EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.call@tetratech.com

SAMPLER'S PRINTED NAME: Johanna Traut (774)-722-0409

SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED	TIME	MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO_3	H_2SO_4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	PCBs	Metals							pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	IOA SS-EU17-0002	8/10/11	0910	S	3	3							1	1	1								
2	IOA-SS-EU10-0002		1000		1	1							1	1	1								
3	IOA SS-EU31-0002		0900		3	3							1	1	1								
4	IOA SS-EU40-0002		0830		3	3							1	1	1								
5	IOA SS-EU27-0002		0820		2	2							1	1	1								
6	IOA-SS-DUP02-081011		0000		3	3							1	1	1								DUP02 (PAHs PCBs Metals)
7	IOA-SS-EU29-0002		1015		3	3							1	1	1								DUP01
8	IOA-SS-EU16-0002		1025		3	3							1	1	1								
9	IOA-SS-EU30-0002		1045		3	3							1	1	1								
10	IOA-SS-EU41-0002		1100		3	3							1	1	1								

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/10/11	1700	to FedEx		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

TURNAROUND DESIRED: Standard ☒ **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

MATRIX CODES: A = AIR; DW = DRINKING WATER; GW = GROUNDWATER; L = LIQUID; O = OIL; WW = WASTE WATER; S = SOIL; SD = SOLID; SL = SLUDGE; SV = SOLVENT WASTE; W = WATER; WP = WIPE; SW = SURFACE WATER

CHAIN OF CUSTODY RECORD

PAGE: 3 OF: 4

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS	REPORT TO: P. Call	BILL TO:	P.O. #
PROJECT NAME: Industrial Operations Area	PROJECT #: 112602073 1 CTO WE11	QUOTE #:	COMPANY: TetraTech	COMPANY: per Labspec
SAMPLING LOCATION (STATE or COUNTRY): MA			ADDRESS: 250 Andover St, Suite 200	ADDRESS:
SPECIAL INSTRUCTIONS / COMMENTS:			CITY, STATE, ZIP: Wilmington, MA 01887	CITY, STATE, ZIP
			PHONE: 978 474-8406	EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.Call@tetratech.com

SAMPLER'S PRINTED NAME: JohannaTraut (774)722-0469 SAMPLER'S SIGNATURE: JhannaTraut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PCBs	PAHs	Metals	pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	IOA-SS-EU47-0002	8/10/11	1115	S	3	3							1	1	1		
2	IOA-SS-EU46-0002	8/10/11	1125		3	3							1	1	1		DUP03 PAH PCB Metal
3	IOA-SS-EU36-0002	8/10/11	1225		3	3							1	1	1		
4	IOA-SS-DUP03-081011	8/10/11	0000		3	3							1	1	1		DUP03 PAH PCB Metal
5	IOA-SS-EU35-0002	8/10/11	1235		7	7							2	3	2		Lab QC
6	IOA-SS-EU23-0002	8/10/11	1250		3	3							1	1	1		
7	IOA-SS-EU45-0002	8/10/11	1310		3	3							1	1	1		
8	IOA-SS-EU49-0002	8/10/11	1320		3	3							1	1	1		
9	IOA-SS-EU48-0002	8/10/11	1335		3	3							1	1	1		
10	IOA-SS-EU44-0002	8/10/11	1355		3	3							1	1	1		

Relinquished By:	Date	Time	Received By:	Date	Time
JhannaTraut	8/10/11	1700	to FedEx		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

MATRIX CODES: A = AIR; DW = DRINKING WATER; GW = GROUNDWATER; L = LIQUID; O = OIL; WW = WASTE WATER; S = SOIL; SD = SOLID; SL = SLUDGE; SV = SOLVENT WASTE; W = WATER; WP = WIPE; SW = SURFACE WATER

CHAIN OF CUSTODY RECORD

PAGE: 4 OF: 4

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: Tetra Tech NUS

REPORT TO: Phoebe Call

BILL TO: P.O. #

PROJECT NAME: Industrial Operations Area NAS Weymouth

PROJECT #: 112G02073/CTOWE11

QUOTE #

COMPANY: Tetra Tech

COMPANY: See lab spec

SAMPLING LOCATION (STATE or COUNTRY): MA

ADDRESS: 250 Andover St, Suite 200

ADDRESS:

SPECIAL INSTRUCTIONS / COMMENTS:

CITY, STATE, ZIP: Wilmington, MA 01887

CITY, STATE, ZIP

PHONE: 978-474-8406

EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.call@tetratech.com

SAMPLER'S PRINTED NAME: Johanna Traut (774)722-0409

SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO_3	H_2SO_4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	PCBs	Metals						pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	IOA-SS-EU43-0002	8/10/11	1405	S	3	3							1	1	1							
2	IOA-SS-EU42-0002	8/10/11	1430		3	3							1	1	1							
3	IOA-SS-EU34-0002	8/10/11	1445		3	3							1	1	1							
4	IOA-SS-EU33-0002	8/10/11	1450		3	3							1	1	1							
5																						
6																						
7																						
8																						
9																						
10																						

VT 8-11-11

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/10/11	1700	to FedEX		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples: _____ °C On Wet Ice ? _____

Comments: _____

TURNAROUND DESIRED: Standard ☒ **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

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CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 2

RTI LABORATORIES, INC.

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MAIN LAB
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31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS	REPORT TO: Phoebe Call	BILL TO: / P.O. #
PROJECT NAME: Industrial Operations Area CROWELL	PROJECT #: 112602073 Crowell	QUOTE #:
	COMPANY: Tetra Tech	COMPANY: dellabspec
SAMPLING LOCATION (STATE or COUNTRY): MA	ADDRESS: 250 Andover St Suite 200	ADDRESS:
SPECIAL INSTRUCTIONS / COMMENTS:	CITY, STATE, ZIP: Wilmington, MA 01887	CITY, STATE, ZIP
	PHONE: 978-474-8400	EMAIL (OR FAX IF NO EMAIL AVAILABLE): PhoebeCall@tetratech.com
SAMPLER'S PRINTED NAME: JohannaTraut	SAMPLER'S SIGNATURE: Johanna Traut	

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO_3	H_2SO_4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	PCBs	Metals	pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	IOA-SS-EU21-0002	8/11/11	0810	S	30	30							1	1	1		
2	IOA-SS-EU20-0002	8/11/11	0820	S	1	1							-	1	-		
3	IOA-SS-EU32-0002	8/11/11	0825	S	3	3							1	1	1		DUP04 (PAH PCB metals)
4	IOA-SS-EU19-0002	8/11/11	0845	S	3	3							1	1	1		
5	IOA-SS-DUP04-081111	8/11/11	0000	S	3	3							1	1	1		DUP04
6	IOA-SS-EU22-0002	8/11/11	0855	S	1	1							-	1	-		
7	IOA-SS-EU12-0002	8/11/11	0905	S	3	3							1	1	1		
8	IOA-SO-RIA82-01A-0608	8/9/11	1525	S	2	2							1	-	1		
9	IOA-SO-RIA82-02A-0608	8/11/11	0935	S	2	2							1	-	1		
10	IOA-SO-RIA82-03A-0608	8/11/11	0945	S	2	2							1	-	1		

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/11/11	1500	FedEx		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

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CHAIN OF CUSTODY RECORD

PAGE: 2 OF: 2

RTI LABORATORIES, INC.

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MAIN LAB
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31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS	REPORT TO: Phoebe Call	BILL TO:	P.O. #
PROJECT NAME: Industrias operations Area NAS Weymouth	PROJECT #: 112602073 CROWELL	QUOTE #:	COMPANY: TetraTech	COMPANY: ace lab spec
SAMPLING LOCATION (STATE or COUNTRY): MA			ADDRESS: 250 Andover St Suite 200	ADDRESS:
SPECIAL INSTRUCTIONS / COMMENTS:			CITY, STATE, ZIP: Wilmington, MA 01887	CITY, STATE, ZIP
			PHONE: 978-474-8400	EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.call@tetratech.com

SAMPLER'S PRINTED NAME: JohannaTraut (774) 722-0409 SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO_3	H_2SO_4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	Metals	pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	TOA-SO-RIA82-04A-0608	8/11/11	1035	S	2	2							1	1		
2																
3																
4																
5																
6																
7																
8																
9																
10																

JT 8-11-11

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8-11-11	1500	FedEx		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

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CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
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31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS

REPORT TO: Phoebe Call

BILL TO: P.O. #

PROJECT NAME: Industrial Operations Area | PROJECT #: 112602073 | CTOWE11 | QUOTE #:

COMPANY: TetraTech

COMPANY: see lab spec

SAMPLING LOCATION (STATE or COUNTRY): MA

ADDRESS: 250 Andover St, Suite 200

ADDRESS:

SPECIAL INSTRUCTIONS / COMMENTS:

CITY, STATE, ZIP: Wilmington, MA 01887

CITY, STATE, ZIP

PHONE: 978-474-8400

EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.call@tetratech.com

SAMPLER'S PRINTED NAME: JohannaTraut

SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: VOCs	PAHs	PCBs	Metals					pH Acceptable? Y N N/A	COMMENTS
1	IOA-SS-EU20-0002	8/15/11	1525	S	1	1						~~20~~	1	1	-	1						
2	IOA-SO-KIA33-SB04-0305	8/15/11	1310	S	4	2						2	2	1	-	-						
3	IOA-SO-KIA33-SB08-0305	8/15/11	1320	S	4	2						2	2	1	-	1						
4	IOA-SO-DUP05-081511	8/15/11	0000	S	4	2						2	2	1	-	1						DUP05
5	IOA-SO-KIA33-SB10-0305	8/15/11	1340	S	11	5						6	6	3	-	2						Lab QC
6	IOA-SO-KIA33-SB14-0507	8/15/11	1400	S	4	2						2	2	1	-	1						DUP05
7	IOA-SO-KIA33-SB02-0507	8/15/11	1425	S	4	2						2	2	1	-	1						
8	IOA-SO-TB01-081511	8/15/11	0800	~~AQC~~	2	-						2	2	-	-	-						
9																						
10																						

~~Johanna Traut 8-15-11~~

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/15/11	1700	to FedEx		
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples _____ °C On Wet Ice ? _____

Comments: _____

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

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SGS

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- Maryland
- New York
- Ohio

www.us.sgs.com

103166

(1)

CLIENT: Tetra Tech, NUS
CONTACT: Phoebe Call PHONE NO: (978) 474-8400
PROJECT: Industrial Operations Areas NASWEYA with (TOWER 11) SITE/PWSID#:
REPORTS TO: Phoebe Call
250 Andover St. Suite 200 Wilmington MA 01887 FAX NO.: (978) 474-8499
INVOICE TO: Sea 106 spec QUOTE #:
P.O. NUMBER:

SGS Reference:

PAGE 2 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used: 8 / Analysis Required (3): Dioxins	REMARKS
	IOA SS-EU46-0002	8/10/11	1125	SO	1	G	1	DUP02
	IOA-SS-EU36-0002	8/10/11	1225	SO	1	G	1	
	IOA-SS-DUP02 8/10/11	8/10/11	0000	SO	1	G	1	DUP02
	IOA-SS-EU43-0002	8/10/11	1405	SO	1	G	1	

DT 8-10-11

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Hanna Jaud	8/10/11	1700	FedEx
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: ____ . ____
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ (Date Needed) ☐ STD

SGS

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- Maryland
- New York
- Ohio

www.us.sgs.com

103167

(1)

CLIENT: TetraTech

CONTACT: P. Call PHONE NO:(978) 474-8400

PROJECT: Industrial Operations Area 112602073/CTO WE11 SITE/PWSID#:

REPORTS TO: Phoebe Call
250 Andover St, Suite 200
Wilmington, MA 01887 FAX NO.:(978)474-8499

INVOICE TO: see lab spec QUOTE #:

P.O. NUMBER:

SGS Reference:

PAGE 1 OF 2

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	Preservatives Used	Analysis Required (3) Dioxins	REMARKS
	IOA-SS-EU37-0002	8/9/11	1410	SO	1	G		1	
	IOA SS-EU38-0002	8/9/11	1420	SO	1	G		1	
	IOA-SS-EU28-0002	8/9/11	1355	SO	1	G		1	
	IOA-SS-DUP01-080911	8/9/11	0000	SO	1	G		1	DUP01
	IOA-SS-EU15-0002	8/9/11	1320	SO	1	G		1	DUP01
	IOA-SS-EU07-0002	8/9/11	1150	SO	1	G		1	
	IOA-SS-EU09-0002	8/9/11	1300	SO	3	G		3	Lab QC
	IOA-SS-EU37-0002	8/9/11	1440	SO	1	G		1	
	IOA-SS-EU13-0002	8/9/11	1345	SO	1	G		1	
	IOA-SS-EU27-0002	8/10/11	0820	SO	1	G		1	

8-10-11

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Phoebe Call	8/10/11	1700	FedEX
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C:_____ . _____

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:
☐ RUSH _____ (Date Needed) ☐ STD

APPENDIX B

DATA VALIDATION AND DATA USABILITY MEMORANDA

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **P. CALL** **DATE:** **DECEMBER 13, 2011**

FROM: **JOSEPH KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH / PCB**
NAS SOUTH WEYMOUTH, CTO WE11
SDG 1108425

SAMPLES: 17 / Soil / PAH

IOA-SS-DUP01-080911	IOA-SS-DUP02-081011	IOA-SS-EU01-0002
IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU07-0002	IOA-SS-EU09-0002
IOA-SS-EU13-0002	IOA-SS-EU16-0002	IOA-SS-EU17-0002
IOA-SS-EU29-0002	IOA-SS-EU30-0002	IOA-SS-EU31-0002
IOA-SS-EU40-0002	IOA-SS-EU41-0002	

18 / Soil / PCB

IOA-SS-DUP01-080911	IOA-SS-DUP02-081011	IOA-SS-EU01-0002
IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU09-0002	IOA-SS-EU10-0002
IOA-SS-EU13-0002	IOA-SS-EU16-0002	IOA-SS-EU17-0002
IOA-SS-EU27-0002	IOA-SS-EU29-0002	IOA-SS-EU30-0002
IOA-SS-EU31-0002	IOA-SS-EU40-0002	IOA-SS-EU41-0002

OVERVIEW

The sample set for NAS South Weymouth, CTO WE11, SDG 1108425 consisted of nineteen (19) soil environmental samples. The samples were analyzed as listed above for polynuclear aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCB). Two field duplicate sample pairs were included in this sample delivery group (SDG): IOA-SS-DUP01-080911 / IOA-SS-EU01-0002 and IOA-SS-DUP02-081011 / IOA-SS-EU29-0002.

The samples were collected by Tetra Tech on August 9 and 10, 2011 and analyzed by RTI Laboratories, Inc. All analyses were conducted in accordance with EPA SW-846 Methods 8270D for PAHs and 8082 for PCBs, analytical and reporting protocols. An EPA Region I Tier II validation was conducted on the referenced sample analyses. The data was evaluated based on the following parameters:

- Data Completeness
- Holding Times
- * GC/MS Instrument Tuning and System Performance
- Initial and Continuing Calibration
- * Blank Results
- Blank Spike/Blank Spike Duplicate Results
- Surrogate Spike Recoveries
- * Internal Standard Recoveries
- Matrix Spike/Matrix Spike Duplicate Recoveries
- * Field Duplicate Precision
- * Detection Limits

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are

presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report.

HOLD TIME

The quality control limit sample extraction to analysis hold time of 40 days was exceeded by <2X for all soil samples analyzed for PAHs. All positive and non-detected PAH analyte results for the soil samples were qualified estimated, (J) and (UJ), respectively, for the sample extraction to analysis hold time quality control limit non-compliance.

BLANKS

No issues were identified.

CALIBRATIONS

The PAH continuing calibration verification (CCV) percent difference was greater than the 20% quality control limit for acenaphthylene on 09/23/11 @ 11:19 on instrument SVOC5 affecting samples as listed.

Affected Samples:

IOA-SS-DUP02-081011	IOA-SS-EU29-0002	IOA-SS-EU17-0002
IOA-SS-EU31-0002	IOA-SS-EU40-0002	IOA-SS-EU41-0002

Action: The positive and non-detected acenaphthylene results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

The PAH laboratory control sample (LCS) percent recovery (%R) was greater than the quality control limit for benzo(a)anthracene for LCS-23237 affecting samples as listed.

Affected Samples:

IOA-SS-DUP01-080911	IOA-SS-EU02-0002	IOA-SS-EU03-0002
IOA-SS-EU04-0002	IOA-SS-EU06-0002	IOA-SS-EU07-0002
IOA-SS-EU09-0002	IOA-SS-EU13-0002	IOA-SS-EU16-0002
IOA-SS-EU30-0002	IOA-SS-EU01-0002	

Action: The positive benzo(a)anthracene results for the aforementioned samples were qualified estimated, (J), and the non-detected results were not qualified.

MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

Several PAH MSD %Rs were outside quality control limits and the MS/MSD RPDs were greater than the quality control limit for sample IOA-SS-EU09-0002 for the PAH analytes as listed below. The positive analyte results were qualified as listed.

Analyte	%MS	%MSD	RPD	Qualifier for sample result
Benzo(a)anthracene	---	128	---	J
Benzo(a)pyrene	---	115	---	J
Benzo(b)fluoranthene	---	128	---	J
Chrysene	---	113	---	J
Fluoranthene	---	137	38	J
Phenanthrene	---	140	47	J
Pyrene	---	131	33	J

The MS and MSD identified as sample ID 1108425-029MS & MSD had quality control limit non-compliant

PAH %Rs. No validation action was taken as the sample was not a spiked sample from this SDG.

INTERNAL STANDARDS

No issues were identified.

SURROGATE SPIKE RECOVERIES

The Aroclor surrogate decachlorobiphenyl (DCB) %R was greater than the quality control limit for the analysis of sample IOA-SS-EU03-0002. The positive Aroclor-1260 result for the sample was qualified estimated, (J), and the non-detected Aroclor results were not qualified.

COMPOUND QUANTIFICATION

Benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene positive results for sample IOA-SS-EU29-0002 were qualified estimated, (J),because the results exceeded the highest standard calibration level for the instrument. Insufficient sample remained for sample re-analysis at a dilution per the laboratory narrative.

ADDITIONAL COMMENTS

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

The following samples were diluted for PAH analysis resulting in elevated concentrations for non-detected PAH analytes.

Sample	Dilution
IOA-SS-DUP02-081011	5X
IOA-SS-EU02-0002	5X
IOA-SS-EU03-0002	5X
IOA-SS-EU04-0002	5X
IOA-SS-EU07-0002	5X
IOA-SS-EU16-0002	5X
IOA-SS-EU30-0002	5X
IOA-SS-EU31-0002	5X
IOA-SS-EU40-0002	5X

The following samples were diluted for PCB analysis resulting in elevated Aroclor concentrations for non-detected Aroclors.

Sample	Dilution
IOA-SS-EU09-0002	5X
IOA-SS-EU10-0002	50X
IOA-SS-EU17-0002	10X

The laboratory abbreviated the sample identifications throughout the laboratory report due to a character limitation of the laboratory forms processing system. No action was taken for this issue.

Sample results were reported to the Limit of Detection (LOD). LODs were summarized on sample Form I reports.

All results in the database were reported in units of mg/kg instead of ug/kg. The data reviewer amended the database units to reflect the same units as reported on sample form Is.

Due to the lack of appropriate forms provided by the laboratory for all fractions analyzed, excessive time

was spent by the data validation chemist paging through the raw data portion of the data package in order to get the necessary sample data required for data validation purposes.

EXECUTIVE SUMMARY

Laboratory Performance: The sample extraction to analysis hold time of 40 days was exceeded for all soil PAH analyses resulting in qualification of all PAH sample data. PAH analyte results were qualified for a CCV percent difference quality control limit non-compliance. PAH positive benzo(a)anthracene results were qualified for an LCS %R quality control limit non-compliance. The sample IOA-SS-EU03-0002 positive Aroclor-1260 result was qualified for a surrogate %R quality control limit non-compliance. Sample IOA-SS-EU29-0002 benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene positive results were qualified for exceeding the highest standard calibration level for the instrument.

Other Factors Affecting Data Quality: Positive results reported below the limit of quantitation (LOQ) but above the method detection limit were qualified as estimated, (J). Sample IOA-SS-EU09-0002 positive PAH results were qualified for MSD %R and RPD quality control limit non-compliances.

The data for these analyses were reviewed with reference to the EPA SW-846 Method 8270D for PAHs, and Method 8082 for PCBs, analytical and reporting protocols, "USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II" (12/96), and the (DOD) QSM document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech NUS
Joseph Kalinyak
Chemist/Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Regional Worksheets
Appendix D – Support Documentation

APPENDIX A

QUALIFIED LABORATORY RESULTS

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's r < 0.995
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient r < 0.995
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU01-0002			IOA-SS-EU01-0002-D			IOA-SS-EU02-0002			IOA-SS-EU03-0002		
SDG: 1108425	LAB_ID	1108425-001b			1108425-003b			1108425-005b			1108425-002b		
FRACTION: PCB	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			FD			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.2			89.4			89.0			85.5		
	DUP_OF				IOA-SS-EU01-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1221		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1232		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1242		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1248		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1254		7.8	U		7.5	U		7.3	U		7.7	U	
AROCLOR-1260		27	J	P	7	J	P	7.3	U		9.5	J	PR
TOTAL AROCLOR		27	J	P	7	J	P	7.3	U		9.5	J	PR

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU04-0002			IOA-SS-EU06-0002			IOA-SS-EU09-0002			IOA-SS-EU10-0002		
SDG: 1108425	LAB_ID	1108425-006b			1108425-008b			1108425-007b			1108425-012a		
FRACTION: PCB	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.3			86.1			86.1			82.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1221		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1232		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1242		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1248		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1254		7.4	U		7.6	U		38	U		400	U	
AROCLOR-1260		7.3	J	P	150			470			12000		
TOTAL AROCLOR		7.3	J	P	150			470			12000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU13-0002			IOA-SS-EU16-0002			IOA-SS-EU17-0002			IOA-SS-EU27-0002		
SDG: 1108425	LAB_ID	1108425-010b			1108425-018b			1108425-011b			1108425-015a		
FRACTION: PCB	SAMP_DATE	8/9/2011			8/10/2011			8/10/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	81.5			82.9			88.7			90.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1221		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1232		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1242		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1248		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1254		8.2	U		7.9	U		75	U		7.3	U	
AROCLOR-1260		18	J	P	300			1800			7.3	U	
TOTAL AROCLOR		18	J	P	300			1800			7.3	U	

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU29-0002			IOA-SS-EU29-0002-D			IOA-SS-EU30-0002			IOA-SS-EU31-0002		
SDG: 1108425	LAB_ID	1108425-017b			1108425-016b			1108425-019b			1108425-013b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			FD			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.6			92.8			90.0			87.9		
	DUP_OF				IOA-SS-EU29-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1221		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1232		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1242		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1248		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1254		7.2	U		7.2	U		7.3	U		7.6	U	
AROCLOR-1260		59			63			86			150		
TOTAL AROCLOR		59			63			86			150		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU40-0002			IOA-SS-EU41-0002		
SDG: 1108425	LAB_ID	1108425-014b			1108425-020b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	78.1			89.5		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		8.5	U		7.4	U	
AROCLOR-1221		8.5	U		7.4	U	
AROCLOR-1232		8.5	U		7.4	U	
AROCLOR-1242		8.5	U		7.4	U	
AROCLOR-1248		8.5	U		7.4	U	
AROCLOR-1254		8.5	U		7.4	U	
AROCLOR-1260		46			7.4	U	
TOTAL AROCLOR		46			7.4	U	

PROJ_NO: 02073 SDG: 1108425 FRACTION: PAH MEDIA: SOIL	NSAMPLE	IOA-SS-DUP01-080911			IOA-SS-DUP02-081011			IOA-SS-EU01-0002			IOA-SS-EU02-0002		
	LAB_ID	1108425-003A			1108425-016A			1108425-001A			1108425-005A		
	SAMP_DATE	8/9/2011			8/10/2011			8/9/2011			8/9/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.4			92.8			85.2			89.0		
	DUP_OF	IOA-SS-EU01-0002			IOA-SS-EU29-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		19	UJ	H	41	J	HP	20	UJ	H	94	UJ	H
ACENAPHTHENE		42	J	HP	220	J	HP	53	J	HP	94	UJ	H
ACENAPHTHYLENE		19	UJ	H	89	UJ	CH	20	UJ	H	94	UJ	H
ANTHRACENE		83	J	HP	510	J	HP	140	J	HP	94	UJ	H
BENZO(A)ANTHRACENE		240	J	EH	1500	J	H	340	J	EH	94	UJ	EH
BENZO(A)PYRENE		210	J	H	1400	J	H	310	J	H	94	UJ	H
BENZO(B)FLUORANTHENE		280	J	H	1900	J	H	400	J	H	94	UJ	H
BENZO(G,H,I)PERYLENE		68	J	HP	590	J	HP	150	J	HP	94	UJ	H
BENZO(K)FLUORANTHENE		110	J	HP	890	J	H	180	J	HP	94	UJ	H
CHRYSENE		210	J	H	1600	J	H	350	J	H	94	UJ	H
DIBENZO(A,H)ANTHRACENE		29	J	HP	150	J	HP	45	J	HP	190	UJ	H
FLUORANTHENE		480	J	H	3500	J	H	760	J	H	94	UJ	H
FLUORENE		42	J	HP	220	J	HP	54	J	HP	94	UJ	H
INDENO(1,2,3-CD)PYRENE		85	J	HP	580	J	HP	140	J	HP	190	UJ	H
NAPHTHALENE		19	UJ	H	71	J	HP	20	UJ	H	94	UJ	H
PHENANTHRENE		310	J	H	2200	J	H	510	J	H	94	UJ	H
PYRENE		380	J	H	3000	J	H	630	J	H	94	UJ	H

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU03-0002			IOA-SS-EU04-0002			IOA-SS-EU06-0002			IOA-SS-EU07-0002		
SDG: 1108425	LAB_ID	1108425-002A			1108425-006A			1108425-008A			1108425-004A		
FRACTION: PAH	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.5			89.3			86.1			88.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		97	UJ	H	93	UJ	H	19	UJ	H	94	UJ	H
ACENAPHTHENE		97	UJ	H	93	UJ	H	34	J	HP	94	UJ	H
ACENAPHTHYLENE		97	UJ	H	93	UJ	H	94	J	HP	94	UJ	H
ANTHRACENE		97	UJ	H	93	UJ	H	86	J	HP	94	UJ	H
BENZO(A)ANTHRACENE		53	J	EHP	110	J	EHP	380	J	EH	41	J	EHP
BENZO(A)PYRENE		97	UJ	H	97	J	HP	360	J	H	94	UJ	H
BENZO(B)FLUORANTHENE		97	UJ	H	130	J	HP	430	J	H	94	UJ	H
BENZO(G,H,I)PERYLENE		97	UJ	H	93	UJ	H	120	J	HP	94	UJ	H
BENZO(K)FLUORANTHENE		97	UJ	H	100	J	HP	130	J	HP	94	UJ	H
CHRYSENE		97	UJ	H	140	J	HP	370	J	H	94	UJ	H
DIBENZO(A,H)ANTHRACENE		190	UJ	H	190	UJ	H	47	J	HP	190	UJ	H
FLUORANTHENE		76	J	HP	250	J	HP	430	J	H	94	UJ	H
FLUORENE		97	UJ	H	93	UJ	H	30	J	HP	94	UJ	H
INDENO(1,2,3-CD)PYRENE		190	UJ	H	190	UJ	H	110	J	HP	190	UJ	H
NAPHTHALENE		97	UJ	H	93	UJ	H	11	J	HP	94	UJ	H
PHENANTHRENE		97	UJ	H	120	J	HP	200	J	H	94	UJ	H
PYRENE		64	J	HP	210	J	HP	480	J	H	94	UJ	H

PROJ_NO: 02073 SDG: 1108425 FRACTION: PAH MEDIA: SOIL	NSAMPLE	IOA-SS-EU09-0002			IOA-SS-EU13-0002			IOA-SS-EU16-0002			IOA-SS-EU17-0002		
	LAB_ID	1108425-007A			1108425-010B			1108425-018A			1108425-011A		
	SAMP_DATE	8/9/2011			8/9/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.1			81.5			82.9			88.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		11	J	HP	20	UJ	H	100	UJ	H	19	UJ	H
ACENAPHTHENE		58	J	HP	16	J	HP	48	J	HP	22	J	HP
ACENAPHTHYLENE		19	UJ	H	20	J	HP	100	UJ	H	9	J	CHP
ANTHRACENE		91	J	HP	47	J	HP	110	J	HP	60	J	HP
BENZO(A)ANTHRACENE		270	J	DEH	200	J	EH	410	J	EHP	200	J	H
BENZO(A)PYRENE		240	J	DH	170	J	HP	300	J	HP	220	J	H
BENZO(B)FLUORANTHENE		340	J	DH	240	J	H	420	J	HP	340	J	H
BENZO(G,H,I)PERYLENE		95	J	HP	100	J	HP	100	J	HP	130	J	HP
BENZO(K)FLUORANTHENE		110	J	HP	110	J	HP	190	J	HP	130	J	HP
CHRYSENE		280	J	DH	200	J	H	410	J	HP	250	J	H
DIBENZO(A,H)ANTHRACENE		35	J	HP	32	J	HP	200	UJ	H	30	J	HP
FLUORANTHENE		580	J	DH	370	J	H	830	J	HP	450	J	H
FLUORENE		52	J	HP	19	J	HP	60	J	HP	25	J	HP
INDENO(1,2,3-CD)PYRENE		87	J	HP	100	J	HP	200	UJ	H	120	J	HP
NAPHTHALENE		16	J	HP	20	UJ	H	100	UJ	H	19	UJ	H
PHENANTHRENE		400	J	DH	190	J	HP	480	J	HP	290	J	H
PYRENE		480	J	DH	300	J	H	640	J	HP	400	J	H

PROJ_NO: 02073 SDG: 1108425 FRACTION: PAH MEDIA: SOIL	NSAMPLE	IOA-SS-EU29-0002			IOA-SS-EU30-0002			IOA-SS-EU31-0002			IOA-SS-EU40-0002		
	LAB_ID	1108425-017A			1108425-019A			1108425-013A			1108425-014A		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.6			90.0			87.9			78.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		18	J	HP	92	UJ	H	95	UJ	H	210	J	HP
ACENAPHTHENE		330	J	H	92	UJ	H	95	UJ	H	1400	J	H
ACENAPHTHYLENE		13	J	CHP	92	UJ	H	95	UJ	CH	59	J	CHP
ANTHRACENE		660	J	H	92	UJ	H	95	UJ	H	2200	J	H
BENZO(A)ANTHRACENE		1700	J	H	40	J	EHP	95	UJ	H	6300	J	H
BENZO(A)PYRENE		1300	J	H	92	UJ	H	95	UJ	H	5600	J	H
BENZO(B)FLUORANTHENE		2000	J	HL	92	UJ	H	95	UJ	H	7400	J	H
BENZO(G,H,I)PERYLENE		480	J	H	92	UJ	H	95	UJ	H	2500	J	H
BENZO(K)FLUORANTHENE		800	J	H	92	UJ	H	95	UJ	H	3200	J	H
CHRYSENE		1800	J	H	92	UJ	H	95	UJ	H	6500	J	H
DIBENZO(A,H)ANTHRACENE		150	J	HP	180	UJ	H	190	UJ	H	700	J	HP
FLUORANTHENE		2600	J	HL	39	J	HP	95	UJ	H	10000	J	H
FLUORENE		250	J	H	92	UJ	H	95	UJ	H	1200	J	H
INDENO(1,2,3-CD)PYRENE		480	J	H	180	UJ	H	190	UJ	H	2600	J	H
NAPHTHALENE		19	J	HP	92	UJ	H	95	UJ	H	700	J	HP
PHENANTHRENE		1800	J	HL	92	UJ	H	95	UJ	H	8500	J	H
PYRENE		2900	J	HL	92	UJ	H	95	UJ	H	11000	J	H

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU41-0002
SDG: 1108425	LAB_ID	1108425-020A
FRACTION: PAH	SAMP_DATE	8/10/2011
MEDIA: SOIL	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	89.5
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	18	UJ	H
ACENAPHTHENE	10	J	HP
ACENAPHTHYLENE	18	UJ	CH
ANTHRACENE	24	J	HP
BENZO(A)ANTHRACENE	67	J	HP
BENZO(A)PYRENE	50	J	HP
BENZO(B)FLUORANTHENE	80	J	HP
BENZO(G,H,I)PERYLENE	20	J	HP
BENZO(K)FLUORANTHENE	32	J	HP
CHRYSENE	73	J	HP
DIBENZO(A,H)ANTHRACENE	37	UJ	H
FLUORANTHENE	160	J	HP
FLUORENE	18	UJ	H
INDENO(1,2,3-CD)PYRENE	37	UJ	H
NAPHTHALENE	18	UJ	H
PHENANTHRENE	91	J	HP
PYRENE	140	J	HP

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-003 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP01-080911

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1260	7.0	37	J	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Total PCBs	7.0	37		µg/Kg-dry	1	8/24/2011 5:14:09 PM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/24/2011 5:14:09 PM
Surr: Tetrachloro-m-xylene	108	60-125		%REC	1	8/24/2011 5:14:09 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,800,000	180,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Arsenic	1,700	270		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Barium	18,000	4,600		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Beryllium	370	360		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Cadmium	200	180		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Calcium	1,500,000	180,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Chromium	5,700	1,800		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Cobalt	3,100	910		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Copper	7,800	910		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Iron	11,000,000	730,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Lead	14,000	180		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Magnesium	1,700,000	91,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Manganese	270,000	18,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Nickel	4,700	1,800		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Potassium	360,000	91,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Selenium	620	910	J	µg/Kg-dry	20	8/27/2011 10:02:56 AM
Sodium	52,000	91,000	J	µg/Kg-dry	20	8/27/2011 1:54:25 PM
Thallium	110	360	J	µg/Kg-dry	20	8/27/2011 10:02:56 AM
Vanadium	12,000	730		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Zinc	29,000	9,100		µg/Kg-dry	20	8/27/2011 10:02:56 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-003 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP01-080911

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	110	190	J	µg/Kg-dry	10	9/7/2011 7:19:02 PM
Silver	ND	110	U	µg/Kg-dry	10	9/7/2011 7:19:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	37	J	µg/Kg-dry	1	8/24/2011 11:44:40 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Acenaphthene	42	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Anthracene	83	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(a)anthracene	240	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(a)pyrene	210	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(b)fluoranthene	280	180	mH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(g,h,i)perylene	68	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(k)fluoranthene	110	180	JmH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Chrysene	210	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Dibenzo (a,h) anthracene	29	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Fluoranthene	480	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Fluorene	42	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Indeno(1,2,3-cd)pyrene	85	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Phenanthrene	310	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Pyrene	380	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Surr: 2-Fluorobiphenyl	77.8	45-105	H	%REC	1	9/30/2011 8:47:00 PM
Surr: Nitrobenzene-d5	82.8	35-100	H	%REC	1	9/30/2011 8:47:00 PM
Surr: Terphenyl-d14	91.8	30-125	H	%REC	1	9/30/2011 8:47:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-016 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP02-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1260	63	35		µg/Kg-dry	1	8/25/2011 12:12:35 AM
Total PCBs	63	35		µg/Kg-dry	1	8/25/2011 12:12:35 AM
Surr: Decachlorobiphenyl	90.2	60-125		%REC	1	8/25/2011 12:12:35 AM
Surr: Tetrachloro-m-xylene	96.9	60-125		%REC	1	8/25/2011 12:12:35 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,000,000	150,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Arsenic	5,000	230		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Barium	15,000	3,800		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Beryllium	380	310		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Cadmium	200	150		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Calcium	320,000	150,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Chromium	10,000	1,500		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Cobalt	2,100	770		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Copper	3,300	770		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Iron	17,000,000	620,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Lead	12,000	150		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Magnesium	1,100,000	77,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Manganese	84,000	15,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Nickel	5,000	1,500		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Potassium	390,000	77,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Selenium	480	770	J	µg/Kg-dry	20	8/27/2011 10:45:27 AM
Sodium	28,000	77,000	J	µg/Kg-dry	20	8/27/2011 2:29:47 PM
Thallium	88	310	J	µg/Kg-dry	20	8/27/2011 10:45:27 AM
Vanadium	30,000	620		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Zinc	21,000	7,700		µg/Kg-dry	20	8/27/2011 10:45:27 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-016 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP02-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	200	170		µg/Kg-dry	10	9/7/2011 7:33:21 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:33:21 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	30	J	µg/Kg-dry	1	8/24/2011 12:08:06 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	41	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Acenaphthene	220	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Acenaphthylene	ND	850	UH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Anthracene	510	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(a)anthracene	1,500	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(a)pyrene	1,400	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(b)fluoranthene	1,900	850	mH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(g,h,i)perylene	590	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(k)fluoranthene	890	850	mH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Chrysene	1,600	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Dibenzo (a,h) anthracene	150	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Fluoranthene	3,500	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Fluorene	220	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Indeno(1,2,3-cd)pyrene	580	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Naphthalene	71	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Phenanthrene	2,200	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Pyrene	3,000	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Surr: 2-Fluorobiphenyl	93.0	45-105	H	%REC	5	9/23/2011 3:57:00 PM
Surr: Nitrobenzene-d5	87.2	35-100	H	%REC	5	9/23/2011 3:57:00 PM
Surr: Terphenyl-d14	115	30-125	H	%REC	5	9/23/2011 3:57:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.2	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 10:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU01-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1260	27	38	J	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Total PCBs	27	38		µg/Kg-dry	1	8/24/2011 4:25:44 PM
Surr: Decachlorobiphenyl	104	60-125		%REC	1	8/24/2011 4:25:44 PM
Surr: Tetrachloro-m-xylene	99.5	60-125		%REC	1	8/24/2011 4:25:44 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,400,000	140,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Arsenic	1,500	220		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Barium	17,000	3,600		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Beryllium	440	290		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Cadmium	280	140		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Calcium	1,500,000	140,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Chromium	5,500	1,400		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Cobalt	3,200	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Copper	7,700	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Iron	9,800,000	580,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Lead	16,000	140		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Magnesium	1,600,000	72,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Manganese	310,000	14,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Nickel	4,700	1,400		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Potassium	330,000	72,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Selenium	870	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Sodium	50,000	72,000	J	µg/Kg-dry	20	8/27/2011 1:52:44 PM
Thallium	390	290		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Vanadium	12,000	580		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Zinc	29,000	7,200		µg/Kg-dry	20	8/27/2011 9:59:43 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 10:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU01-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	150	210	J	µg/Kg-dry	10	9/7/2011 7:17:28 PM
Silver	ND	130	U	µg/Kg-dry	10	9/7/2011 7:17:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	20	34	J	µg/Kg-dry	1	8/24/2011 11:41:39 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Acenaphthene	53	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Anthracene	140	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(a)anthracene	340	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(a)pyrene	310	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(b)fluoranthene	400	190	mH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(g,h,i)perylene	150	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(k)fluoranthene	180	190	JmH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Chrysene	350	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Dibenzo (a,h) anthracene	45	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Fluoranthene	760	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Fluorene	54	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Indeno(1,2,3-cd)pyrene	140	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Phenanthrene	510	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Pyrene	630	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Surr: 2-Fluorobiphenyl	84.5	45-105	H	%REC	1	10/4/2011 3:57:00 PM
Surr: Nitrobenzene-d5	82.6	35-100	H	%REC	1	10/4/2011 3:57:00 PM
Surr: Terphenyl-d14	92.0	30-125	H	%REC	1	10/4/2011 3:57:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU02-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1260	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Total PCBs	ND	36		µg/Kg-dry	1	8/24/2011 6:09:13 PM
Surr: Decachlorobiphenyl	72.5	60-125		%REC	1	8/24/2011 6:09:13 PM
Surr: Tetrachloro-m-xylene	76.5	60-125		%REC	1	8/24/2011 6:09:13 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	5,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Arsenic	1,000	230		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Barium	17,000	3,800		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Beryllium	300	310	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Cadmium	150	150	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Chromium	5,900	1,500		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Cobalt	2,800	770		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Copper	4,800	770		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Iron	9,600,000	610,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Lead	6,000	150		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Magnesium	1,700,000	77,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Manganese	140,000	15,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Nickel	4,300	1,500		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Potassium	500,000	77,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Selenium	670	770	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Sodium	51,000	77,000	J	µg/Kg-dry	20	8/27/2011 2:17:18 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Vanadium	13,000	610		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Zinc	21,000	7,700		µg/Kg-dry	20	8/27/2011 10:15:58 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU02-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	84	170	J	µg/Kg-dry	10	9/7/2011 7:20:36 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:20:36 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	5.2	29	J	µg/Kg-dry	1	8/24/2011 11:50:33 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Acenaphthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Acenaphthylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(a)anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(a)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(b)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(g,h,i)perylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(k)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Chrysene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Dibenzo (a,h) anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Fluorene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Indeno(1,2,3-cd)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Naphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Phenanthrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Surr: 2-Fluorobiphenyl	85.4	45-105	H	%REC	5	9/30/2011 8:24:00 PM
Surr: Nitrobenzene-d5	83.4	35-100	H	%REC	5	9/30/2011 8:24:00 PM
Surr: Terphenyl-d14	97.2	30-125	H	%REC	5	9/30/2011 8:24:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU03-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1260	9.5	38	J	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Total PCBs	9.5	38		µg/Kg-dry	1	8/24/2011 4:49:59 PM
Surr: Decachlorobiphenyl	141	60-125	S	%REC	1	8/24/2011 4:49:59 PM
Surr: Tetrachloro-m-xylene	88.5	60-125		%REC	1	8/24/2011 4:49:59 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	6,600,000	130,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Arsenic	1,100	200		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Barium	16,000	3,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Beryllium	250	270	J	µg/Kg-dry	20	8/27/2011 10:01:19 AM
Cadmium	200	130		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Calcium	940,000	130,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Chromium	15,000	1,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Cobalt	3,500	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Copper	5,800	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Iron	12,000,000	530,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Lead	9,000	130		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Magnesium	2,000,000	66,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Manganese	180,000	13,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Nickel	14,000	1,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Potassium	280,000	66,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Selenium	720	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Sodium	39,000	66,000	J	µg/Kg-dry	20	8/27/2011 1:53:34 PM
Thallium	140	270	J	µg/Kg-dry	20	8/27/2011 10:01:19 AM
Vanadium	13,000	530		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Zinc	25,000	6,600		µg/Kg-dry	20	8/27/2011 10:01:19 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU03-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	170	J	µg/Kg-dry	10	9/7/2011 7:18:15 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:18:15 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	9.0	42	J	µg/Kg-dry	1	8/24/2011 11:43:07 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Acenaphthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Acenaphthylene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Anthracene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(a)anthracene	53	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(a)pyrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(b)fluoranthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(g,h,i)perylene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(k)fluoranthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Chrysene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Dibenzo (a,h) anthracene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Fluoranthene	76	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Fluorene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Naphthalene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Phenanthrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Pyrene	64	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Surr: 2-Fluorobiphenyl	88.2	45-105	H	%REC	5	9/30/2011 7:15:00 PM
Surr: Nitrobenzene-d5	82.2	35-100	H	%REC	5	9/30/2011 7:15:00 PM
Surr: Terphenyl-d14	93.2	30-125	H	%REC	5	9/30/2011 7:15:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU04-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1260	7.3	37	J	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Total PCBs	7.3	37		µg/Kg-dry	1	8/24/2011 6:33:24 PM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/24/2011 6:33:24 PM
Surr: Tetrachloro-m-xylene	90.1	60-125		%REC	1	8/24/2011 6:33:24 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Arsenic	1,700	230		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Barium	14,000	3,800		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Beryllium	300	300	J	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Cadmium	170	150		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Calcium	1,000,000	150,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Chromium	7,400	1,500		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Cobalt	2,900	760		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Copper	5,200	760		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Iron	11,000,000	610,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Lead	5,300	150		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Magnesium	1,400,000	76,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Manganese	160,000	15,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Nickel	5,200	1,500		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Potassium	370,000	76,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Selenium	650	760	J	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Sodium	52,000	76,000	J	µg/Kg-dry	20	8/27/2011 2:18:09 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Vanadium	14,000	610		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Zinc	22,000	7,600		µg/Kg-dry	20	8/27/2011 10:17:35 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU04-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	170	J	µg/Kg-dry	10	9/7/2011 7:27:08 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:27:08 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.9	28	J	µg/Kg-dry	1	8/24/2011 11:52:02 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Acenaphthene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Acenaphthylene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Anthracene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(a)anthracene	110	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(a)pyrene	97	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(b)fluoranthene	130	890	JmH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(g,h,i)perylene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(k)fluoranthene	100	890	JmH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Chrysene	140	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Dibenzo (a,h) anthracene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Fluoranthene	250	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Fluorene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Naphthalene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Phenanthrene	120	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Pyrene	210	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Surr: 2-Fluorobiphenyl	81.0	45-105	H	%REC	5	9/30/2011 9:33:00 PM
Surr: Nitrobenzene-d5	72.0	35-100	H	%REC	5	9/30/2011 9:33:00 PM
Surr: Terphenyl-d14	88.2	30-125	H	%REC	5	9/30/2011 9:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU06-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1260	150	38		µg/Kg-dry	1	8/24/2011 7:21:44 PM
Total PCBs	150	38		µg/Kg-dry	1	8/24/2011 7:21:44 PM
Surr: Decachlorobiphenyl	77.9	60-125		%REC	1	8/24/2011 7:21:44 PM
Surr: Tetrachloro-m-xylene	74.4	60-125		%REC	1	8/24/2011 7:21:44 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	5,500,000	140,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Arsenic	890	210		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Barium	19,000	3,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Beryllium	360	270		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Cadmium	250	140		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Calcium	1,600,000	140,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Chromium	6,900	1,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Cobalt	2,700	680		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Copper	5,000	680		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Iron	11,000,000	550,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Lead	16,000	140		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Magnesium	1,600,000	68,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Manganese	170,000	14,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Nickel	4,200	1,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Potassium	290,000	68,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Selenium	620	680	J	µg/Kg-dry	20	8/27/2011 10:19:13 AM
Sodium	59,000	68,000	J	µg/Kg-dry	20	8/27/2011 2:19:00 PM
Thallium	ND	270	U	µg/Kg-dry	20	8/27/2011 10:19:13 AM
Vanadium	13,000	550		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Zinc	27,000	6,800		µg/Kg-dry	20	8/27/2011 10:19:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU06-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	230	260	J	µg/Kg-dry	10	9/7/2011 7:27:56 PM
Silver	ND	160	U	µg/Kg-dry	10	9/7/2011 7:27:56 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	37	J	µg/Kg-dry	1	8/24/2011 11:57:47 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Acenaphthene	34	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Acenaphthylene	94	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Anthracene	86	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(a)anthracene	380	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(a)pyrene	360	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(b)fluoranthene	430	190	mH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(g,h,i)perylene	120	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(k)fluoranthene	130	190	JmH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Chrysene	370	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Dibenzo (a,h) anthracene	47	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Fluoranthene	430	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Fluorene	30	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Indeno(1,2,3-cd)pyrene	110	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Naphthalene	11	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Phenanthrene	200	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Pyrene	480	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Surr: 2-Fluorobiphenyl	83.0	45-105	H	%REC	1	9/30/2011 10:19:00 PM
Surr: Nitrobenzene-d5	87.3	35-100	H	%REC	1	9/30/2011 10:19:00 PM
Surr: Terphenyl-d14	94.3	30-125	H	%REC	1	9/30/2011 10:19:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU07-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Arsenic	2,400	230		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Barium	19,000	3,900		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Beryllium	360	310		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Cadmium	370	150		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Chromium	9,500	1,500		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Cobalt	5,500	770		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Copper	11,000	770		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Iron	17,000,000	620,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Lead	11,000	150		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Magnesium	2,900,000	77,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Manganese	330,000	15,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Nickel	9,100	1,500		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Potassium	400,000	77,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Selenium	580	770	J	µg/Kg-dry	20	8/27/2011 10:05:00 AM
Sodium	40,000	77,000	J	µg/Kg-dry	20	8/27/2011 1:55:15 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:05:00 AM
Vanadium	18,000	620		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Zinc	44,000	7,700		µg/Kg-dry	20	8/27/2011 10:05:00 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	150	J	µg/Kg-dry	10	9/7/2011 7:19:49 PM
Silver	ND	92	U	µg/Kg-dry	10	9/7/2011 7:19:49 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	6.3	27	J	µg/Kg-dry	1	8/24/2011 11:46:09 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Acenaphthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU07-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(a)anthracene	41	900	JmH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(a)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(b)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(g,h,i)perylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(k)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Chrysene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Dibenzo (a,h) anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Fluorene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Indeno(1,2,3-cd)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Naphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Phenanthrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Surr: 2-Fluorobiphenyl	87.4	45-105	H	%REC	5	9/30/2011 6:29:00 PM
Surr: Nitrobenzene-d5	86.4	35-100	H	%REC	5	9/30/2011 6:29:00 PM
Surr: Terphenyl-d14	93.2	30-125	H	%REC	5	9/30/2011 6:29:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU09-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1221	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1232	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1242	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1248	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1254	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1260	470	190		µg/Kg-dry	5	8/24/2011 6:57:35 PM
Total PCBs	470	190		µg/Kg-dry	5	8/24/2011 6:57:35 PM
Surr: Decachlorobiphenyl	87.2	60-125		%REC	5	8/24/2011 6:57:35 PM
Surr: Tetrachloro-m-xylene	96.8	60-125		%REC	5	8/24/2011 6:57:35 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	5,600,000	150,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Arsenic	1,400	230		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Barium	22,000	3,800		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Beryllium	300	310	J	µg/Kg-dry	20	8/27/2011 9:54:00 AM
Cadmium	300	150		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Chromium	8,100	1,500		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Cobalt	2,800	760		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Copper	9,700	760		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Iron	11,000,000	610,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Lead	36,000	150		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Magnesium	1,600,000	76,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Manganese	180,000	15,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Nickel	4,600	1,500		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Potassium	240,000	76,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Selenium	650	760	J	µg/Kg-dry	20	8/27/2011 9:54:00 AM
Sodium	51,000	76,000	J	µg/Kg-dry	20	8/27/2011 1:51:35 PM
Thallium	370	310		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Vanadium	15,000	610		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Zinc	37,000	7,600		µg/Kg-dry	20	8/27/2011 9:54:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU09-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	160		µg/Kg-dry	10	9/7/2011 7:16:41 PM
Silver	ND	95	U	µg/Kg-dry	10	9/7/2011 7:16:41 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	20	35	J	µg/Kg-dry	1	8/24/2011 11:37:17 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	11	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Acenaphthene	58	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Anthracene	91	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(a)anthracene	270	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(a)pyrene	240	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(b)fluoranthene	340	180	mH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(g,h,i)perylene	95	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(k)fluoranthene	110	180	JmH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Chrysene	280	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Dibenzo (a,h) anthracene	35	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Fluoranthene	580	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Fluorene	52	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Indeno(1,2,3-cd)pyrene	87	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Naphthalene	16	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Phenanthrene	400	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Pyrene	480	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Surr: 2-Fluorobiphenyl	74.4	45-105	H	%REC	1	9/30/2011 9:10:00 PM
Surr: Nitrobenzene-d5	76.4	35-100	H	%REC	1	9/30/2011 9:10:00 PM
Surr: Terphenyl-d14	87.4	30-125	H	%REC	1	9/30/2011 9:10:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU10-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1221	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1232	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1242	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1248	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1254	ND	2,000	U	µg/Kg-dry	50	8/24/2011 9:22:53 PM
Aroclor 1260	12,000	2,000		µg/Kg-dry	50	8/24/2011 9:22:53 PM
Total PCBs	12,000	2,000		µg/Kg-dry	50	8/24/2011 9:22:53 PM
Surr: Decachlorobiphenyl	97.8	60-125		%REC	50	8/24/2011 9:22:53 PM
Surr: Tetrachloro-m-xylene	72.9	60-125		%REC	50	8/24/2011 9:22:53 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	18	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:					
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108425**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU13-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1221	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1232	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1242	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1248	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1254	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1260	18	41	J	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Total PCBs	18	41		µg/Kg-dry	1	8/24/2011 7:46:01 PM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/24/2011 7:46:01 PM
Surr: Tetrachloro-m-xylene	102	60-125		%REC	1	8/24/2011 7:46:01 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,600,000	140,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Arsenic	1,300	210		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Barium	21,000	3,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Beryllium	220	280	J	µg/Kg-dry	20	8/27/2011 10:22:24 AM
Cadmium	250	140		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Calcium	810,000	140,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Chromium	8,600	1,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Cobalt	1,400	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Copper	6,200	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Iron	6,100,000	550,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Lead	27,000	140		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Magnesium	900,000	69,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Manganese	75,000	14,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Nickel	5,300	1,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Potassium	260,000	69,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Selenium	880	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Sodium	41,000	69,000	J	µg/Kg-dry	20	8/27/2011 2:20:38 PM
Thallium	ND	280	U	µg/Kg-dry	20	8/27/2011 10:22:24 AM
Vanadium	18,000	550		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Zinc	25,000	6,900		µg/Kg-dry	20	8/27/2011 10:22:24 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU13-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	190	230	J	µg/Kg-dry	10	9/7/2011 7:29:28 PM
Silver	110	140	J	µg/Kg-dry	10	9/7/2011 7:29:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	38	32		µg/Kg-dry	1	8/24/2011 11:53:28 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	200	UH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Acenaphthene	16	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Acenaphthylene	20	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Anthracene	47	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(a)anthracene	200	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(a)pyrene	170	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(b)fluoranthene	240	200	mH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(g,h,i)perylene	100	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(k)fluoranthene	110	200	JmH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Chrysene	200	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Dibenzo (a,h) anthracene	32	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Fluoranthene	370	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Fluorene	19	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Indeno(1,2,3-cd)pyrene	100	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Naphthalene	ND	200	UH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Phenanthrene	190	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Pyrene	300	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Surr: 2-Fluorobiphenyl	81.6	45-105	H	%REC	1	9/30/2011 6:05:00 PM
Surr: Nitrobenzene-d5	84.0	35-100	H	%REC	1	9/30/2011 6:05:00 PM
Surr: Terphenyl-d14	87.1	30-125	H	%REC	1	9/30/2011 6:05:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	19	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU14-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,900,000	160,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Arsenic	1,900	230		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Barium	16,000	3,900		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Beryllium	380	310		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Cadmium	180	160		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Calcium	1,100,000	160,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Chromium	6,300	1,600		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Cobalt	2,500	780		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Copper	4,400	780		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Iron	11,000,000	630,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Lead	13,000	160		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Magnesium	1,300,000	78,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Manganese	150,000	16,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Nickel	4,200	1,600		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Potassium	320,000	78,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Selenium	700	780	J	µg/Kg-dry	20	8/27/2011 10:20:48 AM
Sodium	60,000	78,000	J	µg/Kg-dry	20	8/27/2011 2:19:49 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:20:48 AM
Vanadium	18,000	630		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Zinc	23,000	7,800		µg/Kg-dry	20	8/27/2011 10:20:48 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	140	220	J	µg/Kg-dry	10	9/7/2011 7:28:42 PM
Silver	ND	130	U	µg/Kg-dry	10	9/7/2011 7:28:42 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.3	36	J	µg/Kg-dry	1	8/24/2011 1:37:39 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.4	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-018 **Matrix:** SOIL

Client Sample ID IOA-SS-EU16-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1260	300	39		µg/Kg-dry	1	8/25/2011 1:00:59 AM
Total PCBs	300	39		µg/Kg-dry	1	8/25/2011 1:00:59 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/25/2011 1:00:59 AM
Surr: Tetrachloro-m-xylene	103	60-125		%REC	1	8/25/2011 1:00:59 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B** Analyst: **AV**		
Aluminum	10,000,000	160,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Arsenic	1,300	240		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Barium	21,000	4,100		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Beryllium	290	330	J	µg/Kg-dry	20	8/27/2011 10:48:40 AM
Cadmium	550	160		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Calcium	810,000	160,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Chromium	13,000	1,600		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Cobalt	2,800	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Copper	7,000	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Iron	9,900,000	650,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Lead	56,000	160		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Magnesium	1,700,000	82,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Manganese	160,000	16,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Nickel	7,600	1,600		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Potassium	240,000	82,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Selenium	980	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Sodium	49,000	82,000	J	µg/Kg-dry	20	8/27/2011 2:31:27 PM
Thallium	ND	330	U	µg/Kg-dry	20	8/27/2011 10:48:40 AM
Vanadium	25,000	650		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Zinc	36,000	8,200		µg/Kg-dry	20	8/27/2011 10:48:40 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-018 **Matrix:** SOIL

Client Sample ID IOA-SS-EU16-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	150	180	J	µg/Kg-dry	10	9/7/2011 7:39:00 PM
Silver	60	110	J	µg/Kg-dry	10	9/7/2011 7:39:00 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	31	43	J	µg/Kg-dry	1	8/24/2011 12:11:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Acenaphthene	48	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Acenaphthylene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Anthracene	110	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(a)anthracene	410	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(a)pyrene	300	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(b)fluoranthene	420	960	JmH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(g,h,i)perylene	100	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(k)fluoranthene	190	960	JmH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Chrysene	410	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Dibenzo (a,h) anthracene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Fluoranthene	830	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Fluorene	60	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Indeno(1,2,3-cd)pyrene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Naphthalene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Phenanthrene	480	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Pyrene	640	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Surr: 2-Fluorobiphenyl	89.4	45-105	H	%REC	5	9/30/2011 8:01:00 PM
Surr: Nitrobenzene-d5	83.8	35-100	H	%REC	5	9/30/2011 8:01:00 PM
Surr: Terphenyl-d14	95.2	30-125	H	%REC	5	9/30/2011 8:01:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	17	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:10:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU17-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1221	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1232	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1242	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1248	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1254	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1260	1,800	370		µg/Kg-dry	10	8/24/2011 8:58:38 PM
Total PCBs	1,800	370		µg/Kg-dry	10	8/24/2011 8:58:38 PM
Surr: Decachlorobiphenyl	83.7	60-125		%REC	10	8/24/2011 8:58:38 PM
Surr: Tetrachloro-m-xylene	73.1	60-125		%REC	10	8/24/2011 8:58:38 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,100,000	140,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Arsenic	1,200	210		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Barium	21,000	3,500		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Beryllium	430	280		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Cadmium	570	140		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Calcium	1,100,000	140,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Chromium	12,000	1,400		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Cobalt	2,800	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Copper	8,300	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Iron	15,000,000	560,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Lead	69,000	140		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Magnesium	1,800,000	70,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Manganese	390,000	14,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Nickel	6,900	1,400		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Potassium	290,000	70,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Selenium	1,100	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Sodium	44,000	70,000	J	µg/Kg-dry	20	8/27/2011 2:21:28 PM
Thallium	ND	280	U	µg/Kg-dry	20	8/27/2011 10:24:00 AM
Vanadium	20,000	560		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Zinc	70,000	7,000		µg/Kg-dry	20	8/27/2011 10:24:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:10:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU17-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	710	180		µg/Kg-dry	10	9/7/2011 7:30:14 PM
Silver	87	110	J	µg/Kg-dry	10	9/7/2011 7:30:14 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	11	38	J	µg/Kg-dry	1	8/24/2011 11:54:54 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Acenaphthene	22	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Acenaphthylene	9.7	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Anthracene	60	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(a)anthracene	200	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(a)pyrene	220	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(b)fluoranthene	340	180	mH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(g,h,i)perylene	130	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(k)fluoranthene	130	180	JmH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Chrysene	250	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Dibenzo (a,h) anthracene	30	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Fluoranthene	450	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Fluorene	25	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Indeno(1,2,3-cd)pyrene	120	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Phenanthrene	290	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Pyrene	400	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Surr: 2-Fluorobiphenyl	84.1	45-105	H	%REC	1	9/23/2011 2:23:00 PM
Surr: Nitrobenzene-d5	87.0	35-100	H	%REC	1	9/23/2011 2:23:00 PM
Surr: Terphenyl-d14	99.1	30-125	H	%REC	1	9/23/2011 2:23:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108425**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 8:20:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-015 **Matrix:** SOIL

Client Sample ID IOA-SS-EU27-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1260	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Total PCBs	ND	36		µg/Kg-dry	1	8/24/2011 11:48:23 PM
Surr: Decachlorobiphenyl	71.4	60-125		%REC	1	8/24/2011 11:48:23 PM
Surr: Tetrachloro-m-xylene	90.9	60-125		%REC	1	8/24/2011 11:48:23 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B** Analyst: **AV**		
Aluminum	7,100,000	150,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Arsenic	2,100	220		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Barium	19,000	3,700		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Beryllium	330	300		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Cadmium	180	150		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Calcium	870,000	150,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Chromium	9,400	1,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Cobalt	4,400	750		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Copper	7,100	750		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Iron	14,000,000	600,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Lead	25,000	150		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Magnesium	3,100,000	75,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Manganese	140,000	15,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Nickel	16,000	1,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Potassium	330,000	75,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Selenium	500	750	J	µg/Kg-dry	20	8/27/2011 10:28:48 AM
Sodium	37,000	75,000	J	µg/Kg-dry	20	8/27/2011 2:23:57 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:28:48 AM
Vanadium	33,000	600		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Zinc	57,000	7,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 8:20:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-015 **Matrix:** SOIL

Client Sample ID IOA-SS-EU27-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	260	250		µg/Kg-dry	10	9/7/2011 7:32:34 PM
Silver	ND	150	U	µg/Kg-dry	10	9/7/2011 7:32:34 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	75	38		µg/Kg-dry	1	8/24/2011 12:03:42 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	9.7	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-017 **Matrix:** SOIL

Client Sample ID IOA-SS-EU29-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1260	59	35		µg/Kg-dry	1	8/25/2011 12:36:45 AM
Total PCBs	59	35		µg/Kg-dry	1	8/25/2011 12:36:45 AM
Surr: Decachlorobiphenyl	96.9	60-125		%REC	1	8/25/2011 12:36:45 AM
Surr: Tetrachloro-m-xylene	93.4	60-125		%REC	1	8/25/2011 12:36:45 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,800,000	180,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Arsenic	6,400	260		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Barium	18,000	4,400		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Beryllium	460	350		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Cadmium	240	180		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Calcium	480,000	180,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Chromium	14,000	1,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Cobalt	3,000	880		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Copper	4,200	880		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Iron	21,000,000	700,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Lead	20,000	180		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Magnesium	1,800,000	88,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Manganese	100,000	18,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Nickel	7,700	1,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Potassium	480,000	88,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Selenium	790	880	J	µg/Kg-dry	20	8/27/2011 10:47:03 AM
Sodium	38,000	88,000	J	µg/Kg-dry	20	8/27/2011 2:30:37 PM
Thallium	ND	350	U	µg/Kg-dry	20	8/27/2011 10:47:03 AM
Vanadium	39,000	700		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Zinc	29,000	8,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-017 **Matrix:** SOIL

Client Sample ID IOA-SS-EU29-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	230		µg/Kg-dry	10	9/7/2011 7:38:13 PM
Silver	ND	140	U	µg/Kg-dry	10	9/7/2011 7:38:13 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	36	J	µg/Kg-dry	1	8/24/2011 12:09:34 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	18	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Acenaphthene	330	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Acenaphthylene	13	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Anthracene	660	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(a)anthracene	1,700	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(a)pyrene	1,300	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(b)fluoranthene	2,000	170	EmH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(g,h,i)perylene	480	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(k)fluoranthene	800	170	mH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Chrysene	1,800	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Dibenzo (a,h) anthracene	150	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Fluoranthene	2,600	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Fluorene	250	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Indeno(1,2,3-cd)pyrene	480	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Naphthalene	19	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Phenanthrene	1,800	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Pyrene	2,900	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Surr: 2-Fluorobiphenyl	84.2	45-105	H	%REC	1	9/23/2011 4:21:00 PM
Surr: Nitrobenzene-d5	86.4	35-100	H	%REC	1	9/23/2011 4:21:00 PM
Surr: Terphenyl-d14	109	30-125	H	%REC	1	9/23/2011 4:21:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.4	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-019 **Matrix:** SOIL

Client Sample ID IOA-SS-EU30-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1260	86	36		µg/Kg-dry	1	8/25/2011 1:25:11 AM
Total PCBs	86	36		µg/Kg-dry	1	8/25/2011 1:25:11 AM
Surr: Decachlorobiphenyl	81.5	60-125		%REC	1	8/25/2011 1:25:11 AM
Surr: Tetrachloro-m-xylene	108	60-125		%REC	1	8/25/2011 1:25:11 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	13,000,000	180,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Arsenic	1,500	270		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Barium	17,000	4,400		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Beryllium	420	360		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Cadmium	150	180	J	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Chromium	17,000	1,800		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Cobalt	3,900	890		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Copper	5,700	890		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Iron	16,000,000	710,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Lead	9,300	180		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Magnesium	3,600,000	89,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Manganese	200,000	18,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Nickel	11,000	1,800		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Potassium	230,000	89,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Selenium	850	890	J	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Sodium	46,000	89,000	J	µg/Kg-dry	20	8/27/2011 2:32:18 PM
Thallium	ND	360	U	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Vanadium	21,000	710		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Zinc	34,000	8,900		µg/Kg-dry	20	8/27/2011 10:50:17 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-019 **Matrix:** SOIL

Client Sample ID IOA-SS-EU30-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	240	J	µg/Kg-dry	10	9/7/2011 7:39:47 PM
Silver	ND	140	U	µg/Kg-dry	10	9/7/2011 7:39:47 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	19	33	J	µg/Kg-dry	1	8/24/2011 12:12:32 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Acenaphthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Acenaphthylene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Anthracene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(a)anthracene	40	880	JH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(a)pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(b)fluoranthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(g,h,i)perylene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(k)fluoranthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Chrysene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Dibenzo (a,h) anthracene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Fluoranthene	39	880	JH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Fluorene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Indeno(1,2,3-cd)pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Naphthalene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Phenanthrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Surr: 2-Fluorobiphenyl	87.4	45-105	H	%REC	5	9/30/2011 7:38:00 PM
Surr: Nitrobenzene-d5	85.0	35-100	H	%REC	5	9/30/2011 7:38:00 PM
Surr: Terphenyl-d14	110	30-125	H	%REC	5	9/30/2011 7:38:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU31-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1260	150	38		µg/Kg-dry	1	8/24/2011 11:00:00 PM
Total PCBs	150	38		µg/Kg-dry	1	8/24/2011 11:00:00 PM
Surr: Decachlorobiphenyl	72.5	60-125		%REC	1	8/24/2011 11:00:00 PM
Surr: Tetrachloro-m-xylene	93.8	60-125		%REC	1	8/24/2011 11:00:00 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,000,000	160,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Arsenic	2,200	240		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Barium	17,000	3,900		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Beryllium	410	310		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Cadmium	270	160		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Calcium	1,100,000	160,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Chromium	10,000	1,600		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Cobalt	4,100	790		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Copper	9,200	790		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Iron	18,000,000	630,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Lead	10,000	160		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Magnesium	2,600,000	79,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Manganese	440,000	16,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Nickel	9,000	1,600		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Potassium	440,000	79,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Selenium	480	790	J	µg/Kg-dry	20	8/27/2011 10:25:36 AM
Sodium	59,000	79,000	J	µg/Kg-dry	20	8/27/2011 2:22:17 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:25:36 AM
Vanadium	17,000	630		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Zinc	36,000	7,900		µg/Kg-dry	20	8/27/2011 10:25:36 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU31-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	92	150	J	µg/Kg-dry	10	9/7/2011 7:31:01 PM
Silver	ND	89	U	µg/Kg-dry	10	9/7/2011 7:31:01 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.4	39	J	µg/Kg-dry	1	8/24/2011 11:56:20 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Acenaphthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Acenaphthylene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(a)anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(a)pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(b)fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(g,h,i)perylene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(k)fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Chrysene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Dibenzo (a,h) anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Fluorene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Naphthalene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Phenanthrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Surr: 2-Fluorobiphenyl	90.8	45-105	H	%REC	5	9/23/2011 3:10:00 PM
Surr: Nitrobenzene-d5	83.2	35-100	H	%REC	5	9/23/2011 3:10:00 PM
Surr: Terphenyl-d14	110	30-125	H	%REC	5	9/23/2011 3:10:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	12	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 8:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU40-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1221	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1232	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1242	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1248	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1254	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1260	46	42		µg/Kg-dry	1	8/24/2011 11:24:12 PM
Total PCBs	46	42		µg/Kg-dry	1	8/24/2011 11:24:12 PM
Surr: Decachlorobiphenyl	114	60-125		%REC	1	8/24/2011 11:24:12 PM
Surr: Tetrachloro-m-xylene	92.6	60-125		%REC	1	8/24/2011 11:24:12 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	10,000,000	170,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Arsenic	5,300	250		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Barium	39,000	4,200		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Beryllium	400	330		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Cadmium	420	170		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Calcium	1,400,000	170,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Chromium	15,000	1,700		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Cobalt	3,500	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Copper	15,000	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Iron	16,000,000	670,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Lead	100,000	170		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Magnesium	1,900,000	83,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Manganese	210,000	17,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Nickel	9,200	1,700		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Potassium	290,000	83,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Selenium	960	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Sodium	58,000	83,000	J	µg/Kg-dry	20	8/27/2011 2:23:07 PM
Thallium	ND	330	U	µg/Kg-dry	20	8/27/2011 10:27:12 AM
Vanadium	25,000	670		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Zinc	78,000	8,300		µg/Kg-dry	20	8/27/2011 10:27:12 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 8:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU40-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	350	210		µg/Kg-dry	10	9/7/2011 7:31:47 PM
Silver	390	120		µg/Kg-dry	10	9/7/2011 7:31:47 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	150	38		µg/Kg-dry	1	8/24/2011 12:02:14 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	210	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Acenaphthene	1,400	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Acenaphthylene	59	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Anthracene	2,200	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(a)anthracene	6,300	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(a)pyrene	5,600	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(b)fluoranthene	7,400	1,000	mH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(g,h,i)perylene	2,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(k)fluoranthene	3,200	1,000	mH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Chrysene	6,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Dibenzo (a,h) anthracene	700	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Fluoranthene	10,000	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Fluorene	1,200	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Indeno(1,2,3-cd)pyrene	2,600	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Naphthalene	700	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Phenanthrene	8,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Pyrene	11,000	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Surr: 2-Fluorobiphenyl	75.4	45-105	H	%REC	5	9/23/2011 3:33:00 PM
Surr: Nitrobenzene-d5	69.8	35-100	H	%REC	5	9/23/2011 3:33:00 PM
Surr: Terphenyl-d14	98.8	30-125	H	%REC	5	9/23/2011 3:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	22	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108425**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-020 **Matrix:** SOIL

Client Sample ID IOA-SS-EU41-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Total PCBs	ND	37		µg/Kg-dry	1	8/25/2011 1:49:21 AM
Surr: Decachlorobiphenyl	91.4	60-125		%REC	1	8/25/2011 1:49:21 AM
Surr: Tetrachloro-m-xylene	90.0	60-125		%REC	1	8/25/2011 1:49:21 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	9,200,000	150,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Arsenic	750	230		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Barium	15,000	3,800		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Beryllium	270	300	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Cadmium	100	150	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Calcium	750,000	150,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Chromium	10,000	1,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Cobalt	2,600	750		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Copper	3,400	750		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Iron	11,000,000	600,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Lead	7,100	150		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Magnesium	2,000,000	75,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Manganese	130,000	15,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Nickel	6,500	1,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Potassium	320,000	75,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Selenium	600	750	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Sodium	51,000	75,000	J	µg/Kg-dry	20	8/27/2011 2:33:09 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Vanadium	16,000	600		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Zinc	23,000	7,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-020 **Matrix:** SOIL

Client Sample ID IOA-SS-EU41-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	70	200	J	µg/Kg-dry	10	9/7/2011 7:40:35 PM
Silver	ND	120	U	µg/Kg-dry	10	9/7/2011 7:40:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	11	31	J	µg/Kg-dry	1	8/24/2011 12:14:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Acenaphthene	10	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Anthracene	24	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(a)anthracene	67	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(a)pyrene	50	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(b)fluoranthene	80	180	JmH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(g,h,i)perylene	20	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(k)fluoranthene	32	180	JmH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Chrysene	73	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Fluoranthene	160	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Phenanthrene	91	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Pyrene	140	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Surr: 2-Fluorobiphenyl	87.6	45-105	H	%REC	1	9/23/2011 4:44:00 PM
Surr: Nitrobenzene-d5	90.9	35-100	H	%REC	1	9/23/2011 4:44:00 PM
Surr: Terphenyl-d14	101	30-125	H	%REC	1	9/23/2011 4:44:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

Form 1

CLIENT SAMPLE NO.

IOA-SS-DUP01-080911

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-003A

Sample wt/vol: 0.03005 (g/mL) Kg Lab File ID: 09301122.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.66536 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	180	U
83-32-9	Acenaphthene	42	J
208-96-8	Acenaphthylene	180	U
120-12-7	Anthracene	83	J
56-55-3	Benz(a)anthracene	240	
50-32-8	Benzo(a)pyrene	210	
205-99-2	Benzo(b)fluoranthene	280	
191-24-2	Benzo(g,h,i)perylene	68	J
207-08-9	Benzo(k)fluoranthene	110	J
218-01-9	Chrysene	210	
53-70-3	Dibenz(a,h)anthracene	29	J
206-44-0	Fluoranthene	480	
86-73-7	Fluorene	42	J
193-39-5	Indeno(1,2,3-cd)pyrene	85	J
91-20-3	Naphthalene	180	U
85-01-8	Phenanthrene	310	
129-00-0	Pyrene	380	

Form 1

CLIENT SAMPLE NO.

IOA-SS-DUP02-081011

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-016A

Sample wt/vol: 0.03033 (g/mL) Kg Lab File ID: 09231111.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 7.168643 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	41	J
83-32-9	Acenaphthene	220	J
208-96-8	Acenaphthylene	850	U
120-12-7	Anthracene	510	J
56-55-3	Benz(a)anthracene	1500	
50-32-8	Benzo(a)pyrene	1400	
205-99-2	Benzo(b)fluoranthene	1900	
191-24-2	Benzo(g,h,i)perylene	590	J
207-08-9	Benzo(k)fluoranthene	890	
218-01-9	Chrysene	1600	
53-70-3	Dibenz(a,h)anthracene	150	J
206-44-0	Fluoranthene	3500	
86-73-7	Fluorene	220	J
193-39-5	Indeno(1,2,3-cd)pyrene	580	J
91-20-3	Naphthalene	71	J
85-01-8	Phenanthrene	2200	
129-00-0	Pyrene	3000	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU01-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-001A

Sample wt/vol: 0.03009 (g/mL) Kg Lab File ID: 10041112.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 14.85211 Date Analyzed: 10/4/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	µg/Kg	Q
91-57-6	2-Methylnaphthalene		190	U
83-32-9	Acenaphthene		53	J
208-96-8	Acenaphthylene		190	U
120-12-7	Anthracene		140	J
56-55-3	Benz(a)anthracene		340	
50-32-8	Benzo(a)pyrene		310	
205-99-2	Benzo(b)fluoranthene		400	
191-24-2	Benzo(g,h,i)perylene		150	J
207-08-9	Benzo(k)fluoranthene		180	J
218-01-9	Chrysene		350	
53-70-3	Dibenz(a,h)anthracene		45	J
206-44-0	Fluoranthene		760	
86-73-7	Fluorene		54	J
193-39-5	Indeno(1,2,3-cd)pyrene		140	J
91-20-3	Naphthalene		190	U
85-01-8	Phenanthrene		510	
129-00-0	Pyrene		630	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU02-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-005A

Sample wt/vol: 0.03004 (g/mL) Kg Lab File ID: 09301121.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 11.09037 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	900	U
83-32-9	Acenaphthene	900	U
208-96-8	Acenaphthylene	900	U
120-12-7	Anthracene	900	U
56-55-3	Benz(a)anthracene	900	U
50-32-8	Benzo(a)pyrene	900	U
205-99-2	Benzo(b)fluoranthene	900	U
191-24-2	Benzo(g,h,i)perylene	900	U
207-08-9	Benzo(k)fluoranthene	900	U
218-01-9	Chrysene	900	U
53-70-3	Dibenz(a,h)anthracene	900	U
206-44-0	Fluoranthene	900	U
86-73-7	Fluorene	900	U
193-39-5	Indeno(1,2,3-cd)pyrene	900	U
91-20-3	Naphthalene	900	U
85-01-8	Phenanthrene	900	U
129-00-0	Pyrene	900	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU03-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-002A

Sample wt/vol: 0.03005 (g/mL) Kg Lab File ID: 09301118.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 14.5202 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	930	U
83-32-9	Acenaphthene	930	U
208-96-8	Acenaphthylene	930	U
120-12-7	Anthracene	930	U
56-55-3	Benz(a)anthracene	53	J
50-32-8	Benzo(a)pyrene	930	U
205-99-2	Benzo(b)fluoranthene	930	U
191-24-2	Benzo(g,h,i)perylene	930	U
207-08-9	Benzo(k)fluoranthene	930	U
218-01-9	Chrysene	930	U
53-70-3	Dibenz(a,h)anthracene	930	U
206-44-0	Fluoranthene	76	J
86-73-7	Fluorene	930	U
193-39-5	Indeno(1,2,3-cd)pyrene	930	U
91-20-3	Naphthalene	930	U
85-01-8	Phenanthrene	930	U
129-00-0	Pyrene	64	J

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU04-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-006A

Sample wt/vol: 0.03015 (g/mL) Kg Lab File ID: 09301124.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.71119 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	µg/Kg	Q
91-57-6	2-Methylnaphthalene	890	U
83-32-9	Acenaphthene	890	U
208-96-8	Acenaphthylene	890	U
120-12-7	Anthracene	890	U
56-55-3	Benz(a)anthracene	110	J
50-32-8	Benzo(a)pyrene	97	J
205-99-2	Benzo(b)fluoranthene	130	J
191-24-2	Benzo(g,h,i)perylene	890	U
207-08-9	Benzo(k)fluoranthene	100	J
218-01-9	Chrysene	140	J
53-70-3	Dibenz(a,h)anthracene	890	U
206-44-0	Fluoranthene	250	J
86-73-7	Fluorene	890	U
193-39-5	Indeno(1,2,3-cd)pyrene	890	U
91-20-3	Naphthalene	890	U
85-01-8	Phenanthrene	120	J
129-00-0	Pyrene	210	J

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU06-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-008A

Sample wt/vol: 0.03011 (g/mL) Kg Lab File ID: 09301126.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 13.95841 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	190	U
83-32-9	Acenaphthene	34	J
208-96-8	Acenaphthylene	94	J
120-12-7	Anthracene	86	J
56-55-3	Benz(a)anthracene	380	
50-32-8	Benzo(a)pyrene	360	
205-99-2	Benzo(b)fluoranthene	430	
191-24-2	Benzo(g,h,i)perylene	120	J
207-08-9	Benzo(k)fluoranthene	130	J
218-01-9	Chrysene	370	
53-70-3	Dibenz(a,h)anthracene	47	J
206-44-0	Fluoranthene	430	
86-73-7	Fluorene	30	J
193-39-5	Indeno(1,2,3-cd)pyrene	110	J
91-20-3	Naphthalene	11	J
85-01-8	Phenanthrene	200	
129-00-0	Pyrene	480	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU07-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-004A

Sample wt/vol: 0.03008 (g/mL) Kg Lab File ID: 09301116.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 11.16441 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	900	U
83-32-9	Acenaphthene	900	U
208-96-8	Acenaphthylene	900	U
120-12-7	Anthracene	900	U
56-55-3	Benz(a)anthracene	41	J
50-32-8	Benzo(a)pyrene	900	U
205-99-2	Benzo(b)fluoranthene	900	U
191-24-2	Benzo(g,h,i)perylene	900	U
207-08-9	Benzo(k)fluoranthene	900	U
218-01-9	Chrysene	900	U
53-70-3	Dibenz(a,h)anthracene	900	U
206-44-0	Fluoranthene	900	U
86-73-7	Fluorene	900	U
193-39-5	Indeno(1,2,3-cd)pyrene	900	U
91-20-3	Naphthalene	900	U
85-01-8	Phenanthrene	900	U
129-00-0	Pyrene	900	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU09-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-007A

Sample wt/vol: 0.03028 (g/mL) Kg Lab File ID: 09301123.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 13.96761 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	11	J
83-32-9	Acenaphthene	58	J
208-96-8	Acenaphthylene	180	U
120-12-7	Anthracene	91	J
56-55-3	Benz(a)anthracene	270	
50-32-8	Benzo(a)pyrene	240	
205-99-2	Benzo(b)fluoranthene	340	
191-24-2	Benzo(g,h,i)perylene	95	J
207-08-9	Benzo(k)fluoranthene	110	J
218-01-9	Chrysene	280	
53-70-3	Dibenz(a,h)anthracene	35	J
206-44-0	Fluoranthene	580	
86-73-7	Fluorene	52	J
193-39-5	Indeno(1,2,3-cd)pyrene	87	J
91-20-3	Naphthalene	16	J
85-01-8	Phenanthrene	400	
129-00-0	Pyrene	480	

CLIENT SAMPLE NO.

IOA-SS-EU13-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-010B

Sample wt/vol: 0.03019 (g/mL) Kg Lab File ID: 09301115.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 18.5567 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	200	U
83-32-9	Acenaphthene	16	J
208-96-8	Acenaphthylene	20	J
120-12-7	Anthracene	47	J
56-55-3	Benz(a)anthracene	200	
50-32-8	Benzo(a)pyrene	170	J
205-99-2	Benzo(b)fluoranthene	240	
191-24-2	Benzo(g,h,i)perylene	100	J
207-08-9	Benzo(k)fluoranthene	110	J
218-01-9	Chrysene	200	
53-70-3	Dibenz(a,h)anthracene	32	J
206-44-0	Fluoranthene	370	
86-73-7	Fluorene	19	J
193-39-5	Indeno(1,2,3-cd)pyrene	100	J
91-20-3	Naphthalene	200	U
85-01-8	Phenanthrene	190	J
129-00-0	Pyrene	300	

CLIENT SAMPLE NO.

IOA-SS-EU16-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-018A

Sample wt/vol: 0.03009 (g/mL) Kg Lab File ID: 09301120.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 17.17305 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	960	U
83-32-9	Acenaphthene	48	J
208-96-8	Acenaphthylene	960	U
120-12-7	Anthracene	110	J
56-55-3	Benz(a)anthracene	410	J
50-32-8	Benzo(a)pyrene	300	J
205-99-2	Benzo(b)fluoranthene	420	J
191-24-2	Benzo(g,h,i)perylene	100	J
207-08-9	Benzo(k)fluoranthene	190	J
218-01-9	Chrysene	410	J
53-70-3	Dibenz(a,h)anthracene	960	U
206-44-0	Fluoranthene	830	J
86-73-7	Fluorene	60	J
193-39-5	Indeno(1,2,3-cd)pyrene	960	U
91-20-3	Naphthalene	960	U
85-01-8	Phenanthrene	480	J
129-00-0	Pyrene	640	J

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU17-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-011A

Sample wt/vol: 0.03014 (g/mL) Kg Lab File ID: 09231108.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 11.36213 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	180	U
83-32-9	Acenaphthene	22	J
208-96-8	Acenaphthylene	9.7	J
120-12-7	Anthracene	60	J
56-55-3	Benz(a)anthracene	200	
50-32-8	Benzo(a)pyrene	220	
205-99-2	Benzo(b)fluoranthene	340	
191-24-2	Benzo(g,h,i)perylene	130	J
207-08-9	Benzo(k)fluoranthene	130	J
218-01-9	Chrysene	250	
53-70-3	Dibenz(a,h)anthracene	30	J
206-44-0	Fluoranthene	450	
86-73-7	Fluorene	25	J
193-39-5	Indeno(1,2,3-cd)pyrene	120	J
91-20-3	Naphthalene	180	U
85-01-8	Phenanthrene	290	
129-00-0	Pyrene	400	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU29-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-017A

Sample wt/vol: 0.03033 (g/mL) Kg Lab File ID: 09231112.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 8.377519 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	18	J
83-32-9	Acenaphthene	330	
208-96-8	Acenaphthylene	13	J
120-12-7	Anthracene	660	
56-55-3	Benz(a)anthracene	1700	
50-32-8	Benzo(a)pyrene	1300	
205-99-2	Benzo(b)fluoranthene	2000	E
191-24-2	Benzo(g,h,i)perylene	480	
207-08-9	Benzo(k)fluoranthene	800	
218-01-9	Chrysene	1800	
53-70-3	Dibenz(a,h)anthracene	150	J
206-44-0	Fluoranthene	2600	E
86-73-7	Fluorene	250	
193-39-5	Indeno(1,2,3-cd)pyrene	480	
91-20-3	Naphthalene	19	J
85-01-8	Phenanthrene	1800	E
129-00-0	Pyrene	2900	E

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU30-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-019A

Sample wt/vol: 0.03019 (g/mL) Kg Lab File ID: 09301119.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 9.984717 Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	880	U
83-32-9	Acenaphthene	880	U
208-96-8	Acenaphthylene	880	U
120-12-7	Anthracene	880	U
56-55-3	Benz(a)anthracene	40	J
50-32-8	Benzo(a)pyrene	880	U
205-99-2	Benzo(b)fluoranthene	880	U
191-24-2	Benzo(g,h,i)perylene	880	U
207-08-9	Benzo(k)fluoranthene	880	U
218-01-9	Chrysene	880	U
53-70-3	Dibenz(a,h)anthracene	880	U
206-44-0	Fluoranthene	39	J
86-73-7	Fluorene	880	U
193-39-5	Indeno(1,2,3-cd)pyrene	880	U
91-20-3	Naphthalene	880	U
85-01-8	Phenanthrene	880	U
129-00-0	Pyrene	880	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU31-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-013A

Sample wt/vol: 0.03008 (g/mL) Kg Lab File ID: 09231109.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 12.17881 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	µg/Kg	Q
91-57-6	2-Methylnaphthalene	910	U
83-32-9	Acenaphthene	910	U
208-96-8	Acenaphthylene	910	U
120-12-7	Anthracene	910	U
56-55-3	Benz(a)anthracene	910	U
50-32-8	Benzo(a)pyrene	910	U
205-99-2	Benzo(b)fluoranthene	910	U
191-24-2	Benzo(g,h,i)perylene	910	U
207-08-9	Benzo(k)fluoranthene	910	U
218-01-9	Chrysene	910	U
53-70-3	Dibenz(a,h)anthracene	910	U
206-44-0	Fluoranthene	910	U
86-73-7	Fluorene	910	U
193-39-5	Indeno(1,2,3-cd)pyrene	910	U
91-20-3	Naphthalene	910	U
85-01-8	Phenanthrene	910	U
129-00-0	Pyrene	910	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU40-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-014A

Sample wt/vol: 0.03023 (g/mL) Kg Lab File ID: 09231110.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 21.94557 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 5.00

Extract Volume: 1000 (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) µg/Kg	Q
91-57-6	2-Methylnaphthalene	210	J
83-32-9	Acenaphthene	1400	
208-96-8	Acenaphthylene	59	J
120-12-7	Anthracene	2200	
56-55-3	Benz(a)anthracene	6300	
50-32-8	Benzo(a)pyrene	5600	
205-99-2	Benzo(b)fluoranthene	7400	
191-24-2	Benzo(g,h,i)perylene	2500	
207-08-9	Benzo(k)fluoranthene	3200	
218-01-9	Chrysene	6500	
53-70-3	Dibenz(a,h)anthracene	700	J
206-44-0	Fluoranthene	10000	
86-73-7	Fluorene	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	2600	
91-20-3	Naphthalene	700	J
85-01-8	Phenanthrene	8500	
129-00-0	Pyrene	11000	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU41-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-020A

Sample wt/vol: 0.03036 (g/mL) Kg Lab File ID: 09231113.D

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.56273 Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	µg/Kg	Q
91-57-6	2-Methylnaphthalene		180	U
83-32-9	Acenaphthene		10	J
208-96-8	Acenaphthylene		180	U
120-12-7	Anthracene		24	J
56-55-3	Benz(a)anthracene		67	J
50-32-8	Benzo(a)pyrene		50	J
205-99-2	Benzo(b)fluoranthene		80	J
191-24-2	Benzo(g,h,i)perylene		20	J
207-08-9	Benzo(k)fluoranthene		32	J
218-01-9	Chrysene		73	J
53-70-3	Dibenz(a,h)anthracene		180	U
206-44-0	Fluoranthene		160	J
86-73-7	Fluorene		180	U
193-39-5	Indeno(1,2,3-cd)pyrene		180	U
91-20-3	Naphthalene		180	U
85-01-8	Phenanthrene		91	J
129-00-0	Pyrene		140	J

Form 1

CLIENT SAMPLE NO.

IOA-SS-DUP01-080911

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-003B

Sample wt/vol: 0.03002 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.66536 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	7.0	J
1336-36-3	Total PCBs	7.0	

Form 1

CLIENT SAMPLE NO.

IOA-SS-DUP02-081011

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-016B

Sample wt/vol: 0.0301 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 7.168643 Date Analyzed: 8/25/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	35	U
11104-28-2	Aroclor 1221	35	U
11141-16-5	Aroclor 1232	35	U
53469-21-9	Aroclor 1242	35	U
12672-29-6	Aroclor 1248	35	U
11097-69-1	Aroclor 1254	35	U
11096-82-5	Aroclor 1260	63	
1336-36-3	Total PCBs	63	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU01-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-001B

Sample wt/vol: 0.03028 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 14.85211 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	38	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	27	J
1336-36-3	Total PCBs	27	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU02-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-005B

Sample wt/vol: 0.03068 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 11.09037 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	36	U
11096-82-5	Aroclor 1260	36	U
1336-36-3	Total PCBs	36	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU03-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-002B

Sample wt/vol: 0.03054 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 14.5202 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	38	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	9.5	J
1336-36-3	Total PCBs	9.5	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU04-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-006B

Sample wt/vol: 0.03034 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.71119 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	7.3	J
1336-36-3	Total PCBs	7.3	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU06-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-008B

Sample wt/vol: 0.03043 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 13.95841 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	38	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	150	
1336-36-3	Total PCBs	150	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU09-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-007B

Sample wt/vol: 0.03042 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 13.96761 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 5.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	190	U
11104-28-2	Aroclor 1221	190	U
11141-16-5	Aroclor 1232	190	U
53469-21-9	Aroclor 1242	190	U
12672-29-6	Aroclor 1248	190	U
11097-69-1	Aroclor 1254	190	U
11096-82-5	Aroclor 1260	470	
1336-36-3	Total PCBs	470	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU10-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-012A

Sample wt/vol: 0.03012 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 17.82589 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 50.00

Extract Volume: 5000 (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	2000	U
11104-28-2	Aroclor 1221	2000	U
11141-16-5	Aroclor 1232	2000	U
53469-21-9	Aroclor 1242	2000	U
12672-29-6	Aroclor 1248	2000	U
11097-69-1	Aroclor 1254	2000	U
11096-82-5	Aroclor 1260	12000	
1336-36-3	Total PCBs	12000	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU13-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-010B

Sample wt/vol: 0.03 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 18.5567 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	41	U
11104-28-2	Aroclor 1221	41	U
11141-16-5	Aroclor 1232	41	U
53469-21-9	Aroclor 1242	41	U
12672-29-6	Aroclor 1248	41	U
11097-69-1	Aroclor 1254	41	U
11096-82-5	Aroclor 1260	18	J
1336-36-3	Total PCBs	18	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU16-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-018B

Sample wt/vol: 0.03063 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 17.17305 Date Analyzed: 8/25/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	39	U
11104-28-2	Aroclor 1221	39	U
11141-16-5	Aroclor 1232	39	U
53469-21-9	Aroclor 1242	39	U
12672-29-6	Aroclor 1248	39	U
11097-69-1	Aroclor 1254	39	U
11096-82-5	Aroclor 1260	300	
1336-36-3	Total PCBs	300	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU17-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-011B

Sample wt/vol: 0.03023 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 11.36213 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 10.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	370	U
11104-28-2	Aroclor 1221	370	U
11141-16-5	Aroclor 1232	370	U
53469-21-9	Aroclor 1242	370	U
12672-29-6	Aroclor 1248	370	U
11097-69-1	Aroclor 1254	370	U
11096-82-5	Aroclor 1260	1800	
1336-36-3	Total PCBs	1800	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU27-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-015A

Sample wt/vol: 0.03028 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 9.668509 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	36	U
11096-82-5	Aroclor 1260	36	U
1336-36-3	Total PCBs	36	U

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU29-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-017B

Sample wt/vol: 0.03049 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 8.377519 Date Analyzed: 8/25/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	35	U
11104-28-2	Aroclor 1221	35	U
11141-16-5	Aroclor 1232	35	U
53469-21-9	Aroclor 1242	35	U
12672-29-6	Aroclor 1248	35	U
11097-69-1	Aroclor 1254	35	U
11096-82-5	Aroclor 1260	59	
1336-36-3	Total PCBs	59	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU30-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-019B

Sample wt/vol: 0.03053 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 9.984717 Date Analyzed: 8/25/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	36	U
11096-82-5	Aroclor 1260	86	
1336-36-3	Total PCBs	86	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU31-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-013B

Sample wt/vol: 0.03004 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 12.17881 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	38	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	38	U
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	150	
1336-36-3	Total PCBs	150	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU40-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-014B

Sample wt/vol: 0.03021 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 21.94557 Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	42	U
11104-28-2	Aroclor 1221	42	U
11141-16-5	Aroclor 1232	42	U
53469-21-9	Aroclor 1242	42	U
12672-29-6	Aroclor 1248	42	U
11097-69-1	Aroclor 1254	42	U
11096-82-5	Aroclor 1260	46	
1336-36-3	Total PCBs	46	

Form 1

CLIENT SAMPLE NO.

IOA-SS-EU41-0002

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: 1108425-020B

Sample wt/vol: 0.0302 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received: 8/11/2011

% Moisture: not dec. 10.56273 Date Analyzed: 8/25/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	37	U
11104-28-2	Aroclor 1221	37	U
11141-16-5	Aroclor 1232	37	U
53469-21-9	Aroclor 1242	37	U
12672-29-6	Aroclor 1248	37	U
11097-69-1	Aroclor 1254	37	U
11096-82-5	Aroclor 1260	37	U
1336-36-3	Total PCBs	37	U

APPENDIX C

REGIONAL WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name MS South Weymouth
Reference No. _____

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name RTI Lab
Case/Project No. 02073 CD WELL
SDG No. 7108425
No. of Samples/Matrix _____

SOW/Method No. _____
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. _____

Trip Blank No. _____
Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____

PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

_____

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name J. Kalwyak Company Name RTI Phone Number 412-921-7132

Date Validation Started _____ Date Validation Completed _____

EPA-NE
Data Validation Worksheet Cover Page - Page 2

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

See DV Report

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)
VOA/SV-III	INITIAL CALIBRATION
VOA/SV-IV	CONTINUING CALIBRATION
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS
VOA-VI	VOA SURROGATE SPIKE RECOVERIES
SV-VI	SV SURROGATE SPIKE RECOVERIES
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK
VOA/SV-Pest/PCB-XI	ACCURACY CHECK
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS
VOA/SV-XV	SEMIVOLATILE CLEANUP
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA

Pest/PCB worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-RESOLUTION
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK-RETENTION TIMES
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-ACCURACY CHECK OF INITIAL CALIBRATION
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK-PESTICIDE DEGRADATION
Pest/PCB-III	INITIAL CALIBRATION
Pest/PCB-IV	CONTINUING CALIBRATION
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT
Pest/PCB-VII	PESTICIDE CLEANUP
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK
VOA/SV-Pest/PCB-XI	ACCURACY CHECK
Pest/PCB-XII	COMPOUND IDENTIFICATION
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA

I certify that all criteria were met for the worksheets checked above.

Signature: _____ Name: P Kalnyak

Date: 12/7/11

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
   a. Narrative
   b. Table I-Qualifier Recommendation Summary Table
   c. Table II-Overall Evaluation of Data
   d. Table III-Tentatively Identified Compounds
   e. Data Summary Tables
3. Standard Data Validation Worksheets
   a. Manual
   b. Automated Data Review Reports (i.e., CADRE)
4. Support Documentation
   a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
   b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
   c. Copies of Telephone Logs/Communication Forms for:
      - RSCC communications
      - Requests for laboratory data resubmissions/clarifications
      - Communications with samplers resolving sampling problems
      - Communications with TPO/Lead Chemist to report contractually-deficient data for rejection/reduced payment
      - Communications with EPA Site Manager concerning possible data rejection
      - EPA Site Manager authorization for alternate DV tier
   d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
   e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
   f. Copies of field sampling notes and/or field report supplied by field sampler
   g. Copies of EPA-approved amendments to QAPjP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

See OV Report

VOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
		N/A			

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: [signature]

Date: 12/7/11

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

See DV Report

SEMIVOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: J Kalinyak

Date: 12/7/11

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: See DV Report

Missing Information	Date Lab Contacted	Date Received

Validator: J Kalnyak Date: 12/7/11

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

12/96

Sampler:_____ Company: See DV Report Contacted: Yes No Date:_____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: _____ Date: 12/7/11

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

See DV Report

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments:							

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments:							

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: JKalwyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-III

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria. See DV Report

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	$\overline{RRF}$	Samples Affected	Action

Comments:

Validator: J Kaliszek

Date: 12/7/11

EPA-NE - Data Validation Worksheet

VOA/SV-IV

See DV Report

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action

Comments:

Validator: T Kalinyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet

VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below. See DV Report Concentration Level:____

Sampler: _____ Company: _____ Contacted: Yes No Date:_____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

Validator: J Kalnyak Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

3. **Blank Actions** - List the maximum concentrations of blank compounds. See DV Report

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action

Comments: _____

Validator: J Kalinyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA-VI

See DV Report

VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Volatile Method QC Acceptance Criteria				
	Toluene-d_8	BFB	DCE-d_4	Other:	
OLM03.2	Water 88-110 Soil 84-138	Water 86-115 Soil 59-113	Water 76-114 Soil 70-121		
OLC02.1	NA	80-120	NA		
Other:					
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

Validator: T Kalwyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
SV-VI

See DV Report

VI. SV SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

* Advisory Surrogates - OLM03.2

Validator: _____ Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-VII

See DV Report

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria:_____
IS Retention Time method QC acceptance criteria:_____

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	__IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action

Validator: T Kalinyk

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

See DV Report

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # _____ Matrix _____ Concentration Level _____

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		

Validator: J Kalinyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

See DV Report

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: J Kalinyak Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-X

X. SENSITIVITY CHECK (Method Detection Limit Study)

See DV Report

List all compounds, surrogates, and internal standards that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each compound and matrix of interest? Y N
- Date of Preparation/Analysis: _____ Within 1 year? Y N
- Instrument I.D.: _____ Same as samples? Y N
- Column I.D.: _____ Same as samples? Y N

Matrix	Compound	MDL > QL	Method QC Limits < 80% or > 120%	IS Outside Area Count and/or RT Criteria	RSD > 20%	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

(Laboratory Fortified Blank) - List all LFB compounds, surrogates and internal standards that are outside criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? Y N
- Does it contain all target compounds at the method-required QLs? Y N
- Was the LFB spiked with a standard from a source (vendor) independent of the calibration standard? Y N

Matrix	Compound	Method QC Limits < 60% or > 140% Other:	IS Outside Area Count and/or RT Criteria	Samples Affected	Action

Validator: J Kalwyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XI

See DV Report

XI. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

SDG No: _____ CASE: _____

Are more than one-half of the PES analytes within criteria for each parameter. **Y N**

PE Sample Number	Ampule Number	Parameter	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HIT; TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Validator: Kalinyak Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

See DV Report

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	___MS Ions	____RRT	Action

Validator: TKalwyk

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XIII

XIII. SAMPLE QUANTITATION

See DV Report

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y N**
If no, list sample numbers_____

Fraction		Calculation
VOA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
BNA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
Pesticide/PCB		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator: J Kalnyak

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-XIV

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

See DV Report

List the 5 TICs having the highest concentration for each sample parameter.

Sample Number	Parameter	Compound	____RRT	__Est. Conc.	Action
		N/A			

Validator: _____

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-XV

See DV Report

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments:

Validator: [signature]

Date: 12/7/11

APPENDIX D

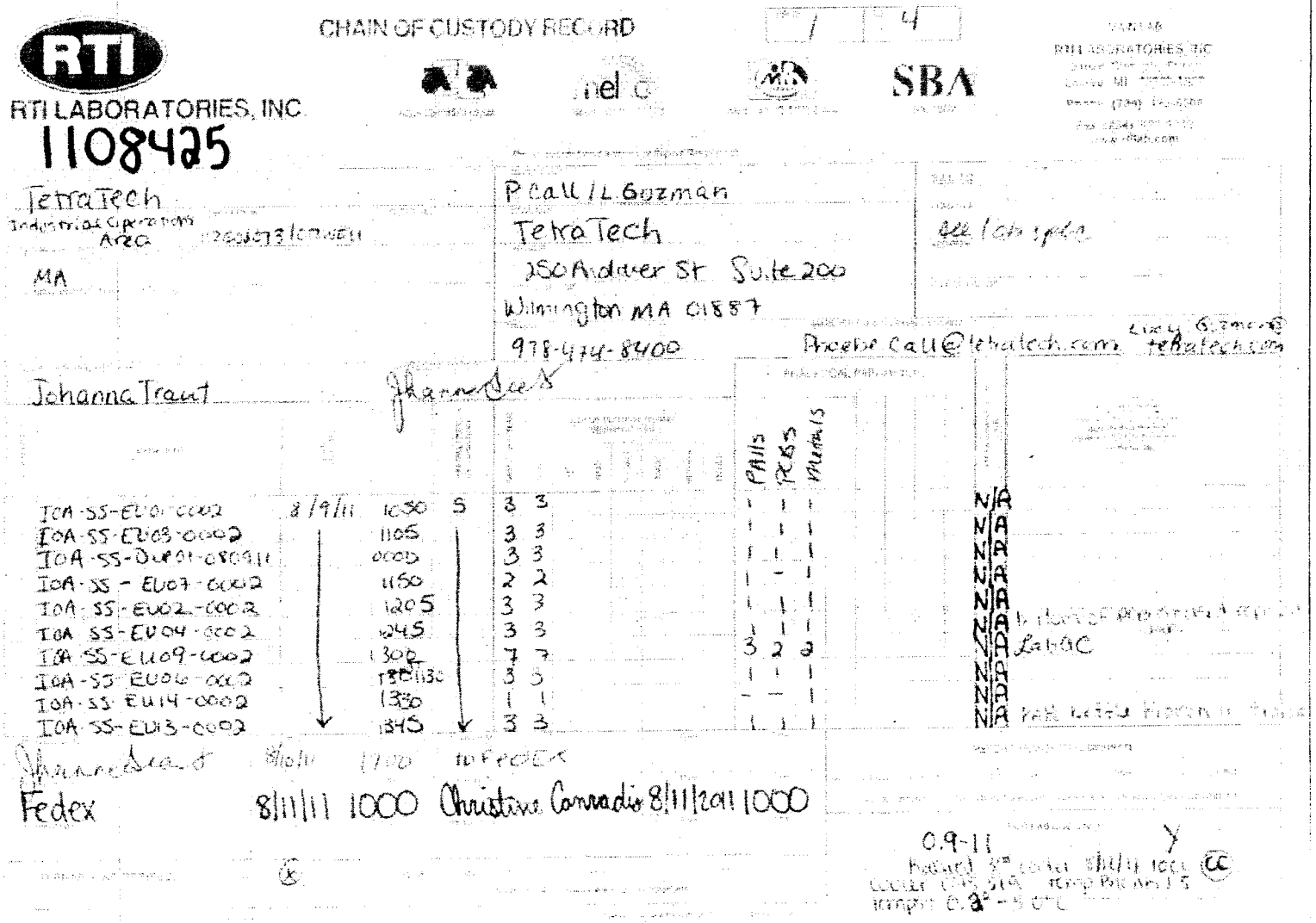
SUPPORT DOCUMENTATION

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	TS	%	IOA-SS-EU04-0002	1108425-006C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-DUP02-081011	1108425-016C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU03-0002	1108425-002C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU01-0002	1108425-001C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	SIM	%	IOA-SS-EU41-0002	1108425-020A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-DUP02-081011	1108425-016A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU40-0002	1108425-014A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU31-0002	1108425-013A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU01-0002	1108425-001A	NM	08/09/2011	08/16/2011	10/04/2011	7	49	56
1108425	SIM	%	IOA-SS-EU30-0002	1108425-019A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	%	IOA-SS-EU13-0002	1108425-010B	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU29-0002	1108425-017A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU09-0002	1108425-007A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU03-0002	1108425-002A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU17-0002	1108425-011A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU16-0002	1108425-018A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	%	IOA-SS-EU04-0002	1108425-006A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU06-0002	1108425-008A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU07-0002	1108425-004A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	SIM	%	IOA-SS-EU02-0002	1108425-005A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-DUP01-080911	1108425-003A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-DUP02-081011	1108425-016A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-EU01-0002	1108425-001A	NM	08/09/2011	08/16/2011	10/04/2011	7	49	56
1108425	SIM	MG/KG	IOA-SS-EU30-0002	1108425-019A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	MG/KG	IOA-SS-EU13-0002	1108425-010B	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU03-0002	1108425-002A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU31-0002	1108425-013A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-EU09-0002	1108425-007A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU40-0002	1108425-014A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-EU06-0002	1108425-008A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU04-0002	1108425-006A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU41-0002	1108425-020A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-EU17-0002	1108425-011A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-EU16-0002	1108425-018A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	MG/KG	IOA-SS-EU07-0002	1108425-004A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU29-0002	1108425-017A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	MG/KG	IOA-SS-DUP01-080911	1108425-003A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	MG/KG	IOA-SS-EU02-0002	1108425-005A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	PCB	%	IOA-SS-EU09-0002	1108425-007b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU06-0002	1108425-008b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU04-0002	1108425-006b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU31-0002	1108425-013b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	%	IOA-SS-EU02-0002	1108425-005b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU01-0002	1108425-001b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-DUP02-081011	1108425-016b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	%	IOA-SS-DUP01-080911	1108425-003b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU03-0002	1108425-002b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU30-0002	1108425-019b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	%	IOA-SS-EU41-0002	1108425-020b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	%	IOA-SS-EU13-0002	1108425-010b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	%	IOA-SS-EU40-0002	1108425-014b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	%	IOA-SS-EU16-0002	1108425-018b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	%	IOA-SS-EU10-0002	1108425-012a	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	%	IOA-SS-EU29-0002	1108425-017b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	%	IOA-SS-EU17-0002	1108425-011b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	%	IOA-SS-EU27-0002	1108425-015a	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU16-0002	1108425-018b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	PCB	MG/KG	IOA-SS-EU29-0002	1108425-017b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	MG/KG	IOA-SS-DUP02-081011	1108425-016b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	MG/KG	IOA-SS-EU41-0002	1108425-020b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	MG/KG	IOA-SS-EU40-0002	1108425-014b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	MG/KG	IOA-SS-EU27-0002	1108425-015a	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-DUP01-080911	1108425-003b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU06-0002	1108425-008b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU09-0002	1108425-007b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU31-0002	1108425-013b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	MG/KG	IOA-SS-EU13-0002	1108425-010b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU30-0002	1108425-019b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108425	PCB	MG/KG	IOA-SS-EU17-0002	1108425-011b	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	MG/KG	IOA-SS-EU01-0002	1108425-001b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU03-0002	1108425-002b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU10-0002	1108425-012a	NM	08/10/2011	08/15/2011	08/24/2011	5	9	14
1108425	PCB	MG/KG	IOA-SS-EU02-0002	1108425-005b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15
1108425	PCB	MG/KG	IOA-SS-EU04-0002	1108425-006b	NM	08/09/2011	08/15/2011	08/24/2011	6	9	15



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

1 | 4

SBA

VANTAB
RTI LABORATORIES, INC

1108425

TetraTech
Industrial Operations Area
MA

P Call / L Guzman
TetraTech
250 Andover St Suite 200
Wilmington MA 01887
978-474-8400
Phoebe Call@tetratech.com
Lucy Guzman@tetratech.com

Johanna Traut

						PAHs	PCBs	Metals		
IOA-SS-EU01-0002	8/9/11	1050	S	3	3	1	1	1	N/A	
IOA-SS-EU03-0002		1105		3	3	1	1	1	N/A	
IOA-SS-DUP01-080911		0000		3	3	1	1	1	N/A	
IOA-SS-EU07-0002		1150		2	2	1	-	1	N/A	
IOA-SS-EU02-0002		1205		3	3	1	1	1	N/A	
IOA-SS-EU04-0002		1245		3	3	1	1	1	N/A	
IOA-SS-EU09-0002		1300		7	7	3	2	2	N/A	LabQC
IOA-SS-EU06-0002		1130		3	3	1	1	1	N/A	
IOA-SS-EU14-0002		1330		1	1	-	-	1	N/A	
IOA-SS-EU13-0002		1345		3	3	1	1	1	N/A	

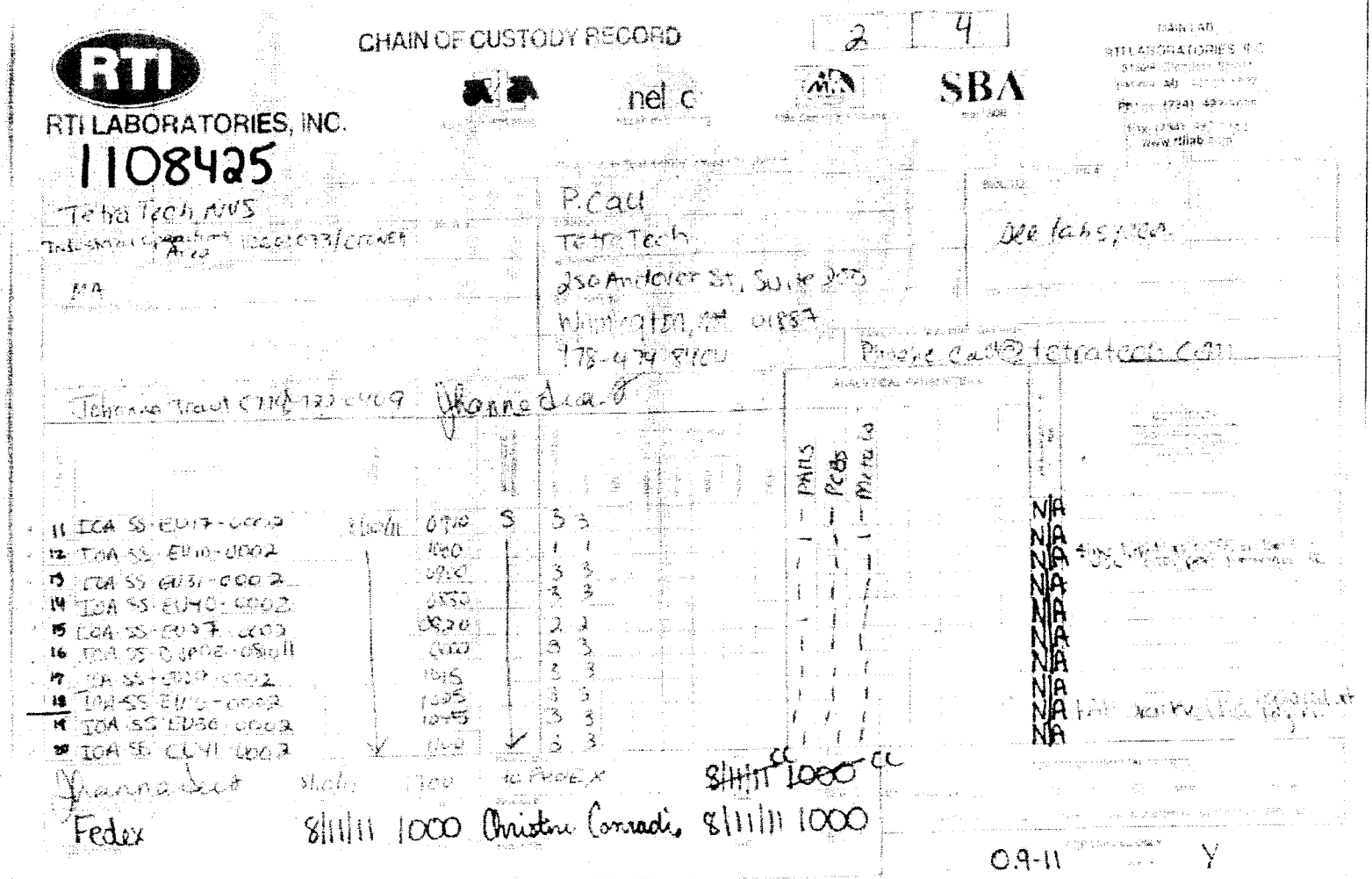
Johanna Traut 8/10/11 1700 to FEDEX

Fedex 8/11/11 1000 Christine Conradis 8/11/2011 1000

0.9-11 Y
Received 3rd cooler 8/11/11 1000 CC
cooler [illegible] temp [illegible]
temp 0.2° - 5.0°C

RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD



2 | 4

SBA

1108425

Tetra Tech NUS
Industrial Operations Area 1000 073/CTONET
MA

P. Cau
Tetra Tech
250 Andover St, Suite 205
Wilmington, MA 01887
978-474-8400

See labs per

Phoebe.Cau@tetratech.com

Johanna Traut (774) 722-0409 Johanna Traut

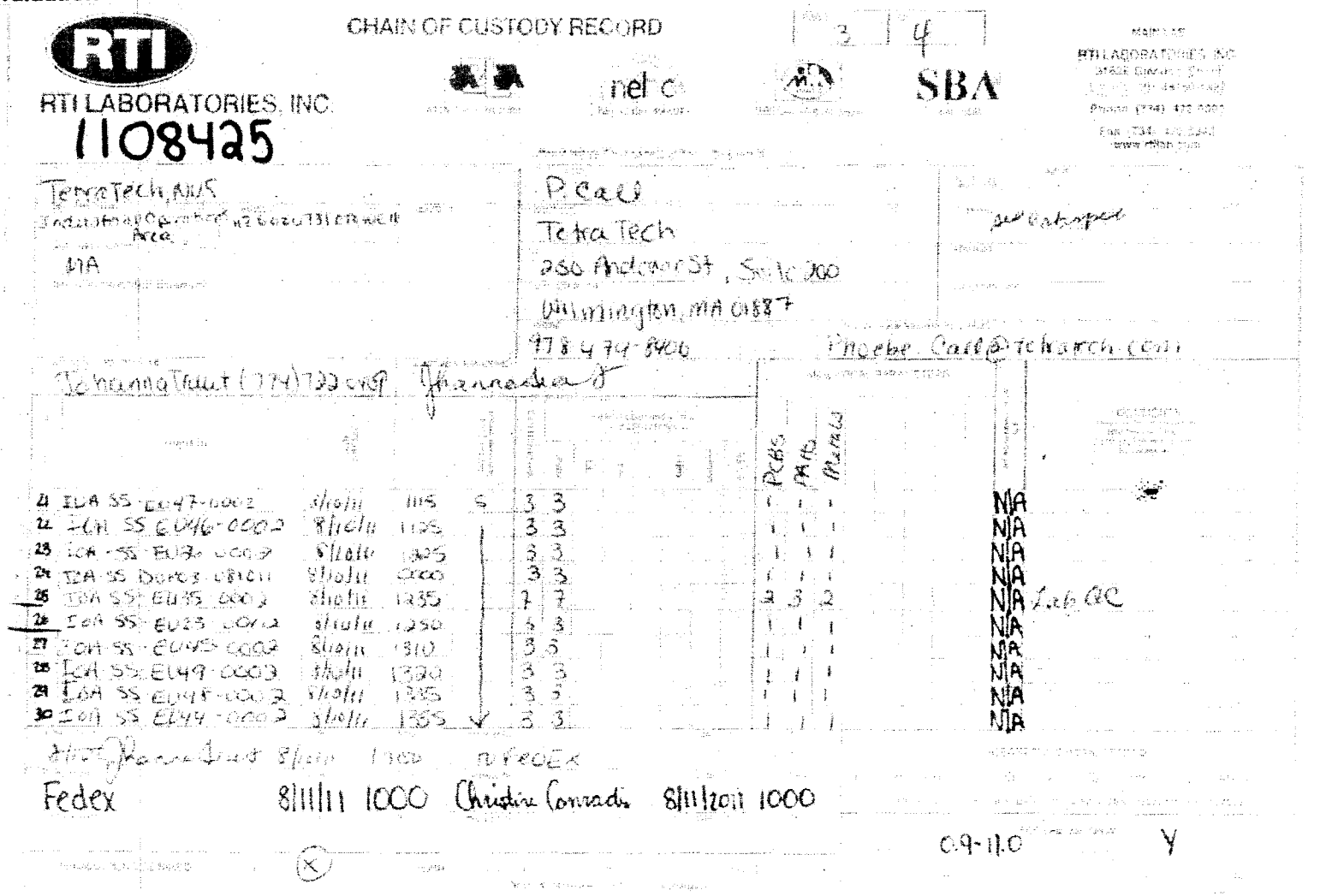
11	IOA SS-EU17-0002	8/10/11	0910	S	3	3	PAHs	PCBs	Metals	N/A
12	IOA SS-EU10-0002		1000		1	1				N/A
13	IOA SS-EU31-0002		0910		3	3				N/A
14	IOA SS-EU40-0002		0850		3	3				N/A
15	IOA SS-EU27-0002		0920		2	2				N/A
16	IOA SS-DUP02-081011		0000		3	3				N/A
17	IOA SS-EU29-0002		1015		3	3				N/A
18	IOA SS-EU10-0002		1025		3	3				N/A
19	IOA SS-EU30-0002		1045		3	3				N/A
20	IOA SS-EU41-0002		1100		3	3				N/A

Johanna Traut 8/10/11 1700 to FEDEX ~~8/11/11 1000~~ CC

Fedex 8/11/11 1000 Christine Conradi 8/11/11 1000

0.9-11 Y

X



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

3 | 4

SBA

1108425

Tetra Tech, NUS
Industrial Operations Area
MA

P. Call
Tetra Tech
250 Andover St, Suite 200
Wilmington, MA 01887
978 474-8400
Phoebe.Call@tetratech.com

Johanna Trout (774) 722-0409

							PCBs	PAHs	Metals		
21	IOA SS EU47-0002	8/10/11	1115	S	3	3	1	1	1	N/A	
22	IOA SS EU46-0002	8/10/11	1125		3	3	1	1	1	N/A	
23	IOA SS EU36-0002	8/10/11	1205		3	3	1	1	1	N/A	
24	IOA SS DUP03-081011	8/10/11	0000		3	3	1	1	1	N/A	
25	IOA SS EU35-0002	8/10/11	1235		7	7	2	3	2	N/A	Lab QC
26	IOA SS EU23-0002	8/10/11	1250		3	3	1	1	1	N/A	
27	IOA SS EU45-0002	8/10/11	1310		3	3	1	1	1	N/A	
28	IOA SS EU49-0002	8/10/11	1320		3	3	1	1	1	N/A	
29	IOA SS EU48-0002	8/10/11	1335		3	3	1	1	1	N/A	
30	IOA SS EU44-0002	8/10/11	1355	✓	3	3	1	1	1	N/A	

8/10/11 Johanna Trout 8/10/11 1700 to FEDEX

Fedex 8/11/11 1000 Christine Conradi 8/11/2011 1000

0.9-11.0 Y

www.ammara.com

RTI

RTI LABORATORIES, INC.

1108425

CHAIN OF CUSTODY RECORD

4 4

nelac

SBA

MAIN LAB
RTI LABORATORIES, INC.

Tetra Tech NUS
SA SW Weymouth
MA

Phoebe Call
Tetra Tech
250 Andover St, Suite 200
Wilmington, MA 01887
978-474-8400
Phoebe.call@tetratech.com

Joanna Trust 07-3722-0029

31	IOA SS EU43 0002	8/10/11	1405	S	3	3			N/A
32	IOA SS EU42 0002	8/10/11	1430		3	3			N/A
33	IOA SS EU34 0002	8/10/11	1445		3	3			N/A
34	IOA SS EU37 0002	8/10/11	1455	↓	3	3			N/A

PAHs Pest Metals

Joanna Trust	8/10/11	1900	FedEx		
FedEx	8/11/11	1000	Christine Conrad	8/11/11	1000

0.9-11 Y

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Sample Receipt Checklist

Client Name: **TET15** Date and Time Received: **8/11/2011 10:00:00 AM**

Work Order Number **1108425** RcptNo: **1** Received by: **Christine Conradis**

Completed by: Reviewed by:

Completed Date: 8/11/2011 11:55:05 AM Reviewed Date: 8/12/2011 4:22:29 PM

Carrier name: FedEx

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	Not Present ☐
Are matrices correctly identified on Chain of custody?	Yes ☑	No ☐	
Is it clear what analyses were requested?	Yes ☑	No ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Samples in proper container/bottle?	Yes ☑	No ☐	
Were correct preservatives used and noted?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Were container lables complete (ID, Pres, Date)?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Was an attempt made to cool the samples?	Yes ☑	No ☐	
All samples received at a temp. of > 0° C to 6.0° C?	Yes ☐	No ☑	
Response when temperature is outside of range:	on ice		
Preservative added to bottles:			
Sample Temp. taken and recorded upon receipt?	Yes ☑	No ☐	0.9 To 11 °C
Water - Were bubbles absent in VOC vials?	Yes ☐	No ☐	No Vials ☑
Water - Was there Chlorine Present?	Yes ☐	No ☐	NA ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	No Water ☑
Are Samples considered acceptable?	Yes ☑	No ☐	
Custody Seals present?	Yes ☑	No ☐	
Traffic Report or Packing Lists present?	Yes ☐	No ☑	
Airbill or Sticker?	Air Bill ☑	Sticker ☐	Not Present ☐
Airbill No:	795539900453		
Sample Tags Present?	Yes ☐	No ☑	
Sample Tags Listed on COC?	Yes ☐	No ☑	
Tag Numbers:			
Sample Condition?	Intact ☑	Broken ☐	Leaking ☐

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

SampID	ContainerID	Type	Org pH	Adj pH	Req Min pH	Req Max pH
1108425-001A	Container-01 of 01	Bottle				
1108425-001B	Container-01 of 01	Bottle				
1108425-001C	Container-01 of 01	Bottle				
1108425-002A	Container-01 of 01	Bottle				
1108425-002B	Container-01 of 01	Bottle				
1108425-002C	Container-01 of 01	Bottle				
1108425-003A	Container-01 of 01	Bottle				
1108425-003B	Container-01 of 01	Bottle				
1108425-003C	Container-01 of 01	Bottle				
1108425-004A	Container-01 of 01	Bottle				
1108425-004B	Container-01 of 01	Bottle				
1108425-005A	Container-01 of 01	Bottle				
1108425-005B	Container-01 of 01	Bottle				
1108425-005C	Container-01 of 01	Bottle				
1108425-006A	Container-01 of 01	Bottle				
1108425-006B	Container-01 of 01	Bottle				
1108425-006C	Container-01 of 01	Bottle				
1108425-007A	Container-01 of 03	Bottle				
1108425-007A	Container-02 of 03	Bottle				
1108425-007A	Container-03 of 03	Bottle				
1108425-007B	Container-01 of 02	Bottle				
1108425-007B	Container-02 of 02	Bottle				
1108425-007C	Container-01 of 02	Bottle				
1108425-007C	Container-02 of 02	Bottle				
1108425-008A	Container-01 of 01	Bottle				
1108425-008B	Container-01 of 01	Bottle				
1108425-008C	Container-01 of 01	Bottle				
1108425-009A	Container-01 of 01	Bottle				
1108425-010B	Container-01 of 01	Bottle				
1108425-010C	Container-01 of 01	Bottle				
1108425-011A	Container-01 of 01	Bottle				
1108425-011B	Container-01 of 01	Bottle				
1108425-011C	Container-01 of 01	Bottle				
1108425-012A	Container-01 of 01	Bottle				

SampID	ContainerID	Type	Org pH	Adj pH	Req Min pH	Req Max pH
1108425-013A	Container-01 of 01	Bottle				
1108425-013B	Container-01 of 01	Bottle				
1108425-013C	Container-01 of 01	Bottle				
1108425-014A	Container-01 of 01	Bottle				
1108425-014B	Container-01 of 01	Bottle				
1108425-014C	Container-01 of 01	Bottle				
1108425-015A	Container-01 of 01	Bottle				
1108425-015B	Container-01 of 01	Bottle				
1108425-016A	Container-01 of 01	Bottle				
1108425-016B	Container-01 of 01	Bottle				
1108425-016C	Container-01 of 01	Bottle				
1108425-017A	Container-01 of 01	Bottle				
1108425-017B	Container-01 of 01	Bottle				
1108425-017C	Container-01 of 01	Bottle				
1108425-018A	Container-01 of 01	Bottle				
1108425-018B	Container-01 of 01	Bottle				
1108425-018C	Container-01 of 01	Bottle				
1108425-019A	Container-01 of 01	Bottle				
1108425-019B	Container-01 of 01	Bottle				
1108425-019C	Container-01 of 01	Bottle				
1108425-020A	Container-01 of 01	Bottle				
1108425-020B	Container-01 of 01	Bottle				
1108425-020C	Container-01 of 01	Bottle				

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
A-507A	0.9-11.0	Good	Yes		8/10/2011	Johanna Traut
A-588	3.4-8.0	Good	Yes		8/10/2011	Johanna Traut

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client Contacted? ☐ Yes ☑ No ☐ NA Person Contacted:

Comments:
1 of 3 coolers not received. 8/11/11 CC

Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person:

Client Instructions:

Date Contacted: Contacted By:

Regarding:

CorrectiveAction:

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108425

14-Nov-11

CLIENT: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108425-001	IOA-SS-EU01-0002		8/9/2011 10:50:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-001	IOA-SS-EU01-0002		8/9/2011 10:50:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-001	IOA-SS-EU01-0002		8/9/2011 10:50:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-002	IOA-SS-EU03-0002		8/9/2011 11:05:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-002	IOA-SS-EU03-0002		8/9/2011 11:05:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-002	IOA-SS-EU03-0002		8/9/2011 11:05:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-003	IOA-SS-DUP01-080911		8/9/2011	8/11/2011 10:00:00 AM	Soil
1108425-003	IOA-SS-DUP01-080911		8/9/2011	8/11/2011 10:00:00 AM	Soil
1108425-003	IOA-SS-DUP01-080911		8/9/2011	8/11/2011 10:00:00 AM	Soil
1108425-004	IOA-SS-EU07-0002		8/9/2011 11:50:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-004	IOA-SS-EU07-0002		8/9/2011 11:50:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-005	IOA-SS-EU02-0002		8/9/2011 12:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-005	IOA-SS-EU02-0002		8/9/2011 12:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-005	IOA-SS-EU02-0002		8/9/2011 12:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-006	IOA-SS-EU04-0002		8/9/2011 12:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-006	IOA-SS-EU04-0002		8/9/2011 12:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-006	IOA-SS-EU04-0002		8/9/2011 12:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-007	IOA-SS-EU09-0002		8/9/2011 1:00:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-007	IOA-SS-EU09-0002		8/9/2011 1:00:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-007	IOA-SS-EU09-0002		8/9/2011 1:00:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-008	IOA-SS-EU06-0002		8/9/2011 11:30:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-008	IOA-SS-EU06-0002		8/9/2011 11:30:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-008	IOA-SS-EU06-0002		8/9/2011 11:30:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-009	IOA-SS-EU14-0002		8/9/2011 1:30:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-010	IOA-SS-EU13-0002		8/9/2011 1:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-010	IOA-SS-EU13-0002		8/9/2011 1:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108425-011	IOA-SS-EU17-0002		8/10/2011 9:10:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-011	IOA-SS-EU17-0002		8/10/2011 9:10:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-011	IOA-SS-EU17-0002		8/10/2011 9:10:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-012	IOA-SS-EU10-0002		8/10/2011 10:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-013	IOA-SS-EU31-0002		8/10/2011 9:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-013	IOA-SS-EU31-0002		8/10/2011 9:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-013	IOA-SS-EU31-0002		8/10/2011 9:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-014	IOA-SS-EU40-0002		8/10/2011 8:30:00 AM	8/11/2011 10:00:00 AM	Soil

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108425

14-Nov-11

CLIENT: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108425-014	IOA-SS-EU40-0002		8/10/2011 8:30:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-014	IOA-SS-EU40-0002		8/10/2011 8:30:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-015	IOA-SS-EU27-0002		8/9/2011 8:20:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-015	IOA-SS-EU27-0002		8/9/2011 8:20:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-016	IOA-SS-DUP02-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108425-016	IOA-SS-DUP02-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108425-016	IOA-SS-DUP02-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108425-017	IOA-SS-EU29-0002		8/10/2011 10:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-017	IOA-SS-EU29-0002		8/10/2011 10:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-017	IOA-SS-EU29-0002		8/10/2011 10:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-018	IOA-SS-EU16-0002		8/10/2011 10:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-018	IOA-SS-EU16-0002		8/10/2011 10:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-018	IOA-SS-EU16-0002		8/10/2011 10:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-019	IOA-SS-EU30-0002		8/10/2011 10:45:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-019	IOA-SS-EU30-0002		8/10/2011 10:45:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-019	IOA-SS-EU30-0002		8/10/2011 10:45:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-020	IOA-SS-EU41-0002		8/10/2011 11:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-020	IOA-SS-EU41-0002		8/10/2011 11:00:00 AM	8/11/2011 10:00:00 AM	Soil
1108425-020	IOA-SS-EU41-0002		8/10/2011 11:00:00 AM	8/11/2011 10:00:00 AM	Soil

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DATES REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-001A	IOA-SS-EU01-0002	8/9/2011 10:50:00 AM	Soil	Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	10/4/2011 3:57:00 PM
1108425-001B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 4:25:44 PM
1108425-001C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:41:39 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:01:32 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 1:52:44 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 9:59:43 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:17:28 PM
1108425-002A	IOA-SS-EU03-0002	8/9/2011 11:05:00 AM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 7:15:00 PM
1108425-002B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 4:49:59 PM
1108425-002C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:43:07 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 1:53:34 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:01:19 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:02:22 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:18:15 PM
1108425-003A	IOA-SS-DUP01-080911	8/9/2011		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 8:47:00 PM
1108425-003B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 5:14:09 PM
1108425-003C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:44:40 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 1:54:25 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:03:12 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:02:56 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM

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DATES REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-003C	IOA-SS-DUP01-080911	8/9/2011	Soil	Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:19:02 PM
1108425-004A	IOA-SS-EU07-0002	8/9/2011 11:50:00 AM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 6:29:00 PM
1108425-004B				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:46:09 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:04:03 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:05:00 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 1:55:15 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:19:49 PM
1108425-005A	IOA-SS-EU02-0002	8/9/2011 12:05:00 PM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 8:24:00 PM
1108425-005B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 6:09:13 PM
1108425-005C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:50:33 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:17:18 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:12:01 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:15:58 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:20:36 PM
1108425-006A	IOA-SS-EU04-0002	8/9/2011 12:45:00 PM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 9:33:00 PM
1108425-006B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 6:33:24 PM
1108425-006C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:52:02 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:18:09 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:17:35 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:12:51 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM

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DATES REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-006C	IOA-SS-EU04-0002	8/9/2011 12:45:00 PM	Soil	Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:27:08 PM
1108425-007A	IOA-SS-EU09-0002	8/9/2011 1:00:00 PM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 9:10:00 PM
1108425-007B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 6:57:35 PM
1108425-007C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:37:17 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 11:51:20 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 9:54:00 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 1:51:35 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:16:41 PM
1108425-008A	IOA-SS-EU06-0002	8/9/2011 11:30:00 AM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 10:19:00 PM
1108425-008B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 7:21:44 PM
1108425-008C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:57:47 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:19:13 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:19:00 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:13:42 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:27:56 PM
1108425-009A	IOA-SS-EU14-0002	8/9/2011 1:30:00 PM		Mercury		8/23/2011 1:38:49 PM	8/24/2011 1:37:39 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:14:31 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:20:48 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:19:49 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:28:42 PM

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DATES REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-010B	IOA-SS-EU13-0002	8/9/2011 1:45:00 PM	Soil	Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 7:46:01 PM
				Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 6:05:00 PM
1108425-010C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:53:28 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:22:24 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:15:21 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:20:38 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:29:28 PM
1108425-011A	IOA-SS-EU17-0002	8/10/2011 9:10:00 AM		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 2:23:00 PM
1108425-011B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 8:58:38 PM
1108425-011C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:54:54 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:16:10 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:21:28 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:24:00 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:30:14 PM
1108425-012A	IOA-SS-EU10-0002	8/10/2011 10:00:00 AM		PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 9:22:53 PM
1108425-013A	IOA-SS-EU31-0002	8/10/2011 9:00:00 AM		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 3:10:00 PM
1108425-013B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 11:00:00 PM
1108425-013C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 11:56:20 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:22:17 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:25:36 AM

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DATES REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-013C	IOA-SS-EU31-0002	8/10/2011 9:00:00 AM	Soil	Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:17:00 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:31:01 PM
1108425-014A	IOA-SS-EU40-0002	8/10/2011 8:30:00 AM		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 3:33:00 PM
1108425-014B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 11:24:12 PM
1108425-014C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:02:14 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:23:07 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:27:12 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:17:50 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:31:47 PM
1108425-015A	IOA-SS-EU27-0002	8/9/2011 8:20:00 AM		Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/24/2011 11:48:23 PM
1108425-015B				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:03:42 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:28:48 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:23:57 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:18:40 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:32:34 PM
1108425-016A	IOA-SS-DUP02-081011	8/10/2011		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 3:57:00 PM
1108425-016B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/25/2011 12:12:35 AM
1108425-016C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:08:06 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:25:56 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:29:47 PM

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DATES REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-016C	IOA-SS-DUP02-081011	8/10/2011	Soil	Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:45:27 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:33:21 PM
1108425-017A	IOA-SS-EU29-0002	8/10/2011 10:15:00 AM		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 4:21:00 PM
1108425-017B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/25/2011 12:36:45 AM
1108425-017C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:09:34 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:30:37 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:47:03 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:26:46 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:38:13 PM
1108425-018A	IOA-SS-EU16-0002	8/10/2011 10:25:00 AM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 8:01:00 PM
1108425-018B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/25/2011 1:00:59 AM
1108425-018C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:11:03 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:31:27 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:48:40 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:27:36 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:39:00 PM
1108425-019A	IOA-SS-EU30-0002	8/10/2011 10:45:00 AM		Semi-Volatile Organic Compounds		8/16/2011 9:08:09 AM	9/30/2011 7:38:00 PM
1108425-019B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/25/2011 1:25:11 AM
1108425-019C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:12:32 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:28:27 PM

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DATES REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108425-019C	IOA-SS-EU30-0002	8/10/2011 10:45:00 AM	Soil	Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:32:18 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:50:17 AM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:39:47 PM
1108425-020A	IOA-SS-EU41-0002	8/10/2011 11:00:00 AM		Semi-Volatile Organic Compounds		8/11/2011 1:25:54 PM	9/23/2011 4:44:00 PM
1108425-020B				Polychlorinated Biphenyls		8/15/2011 10:21:50 AM	8/25/2011 1:49:21 AM
1108425-020C				Mercury		8/23/2011 9:32:23 AM	8/24/2011 12:14:03 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 10:51:54 AM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 2:33:09 PM
				Metals, ICP/MS		8/23/2011 10:29:40 AM	8/27/2011 12:29:18 PM
				PERCENT MOISTURE			8/15/2011 5:30:00 PM
				Silver and Antimony, ICP/MS		8/23/2011 10:49:28 AM	9/7/2011 7:40:35 PM

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QC SUMMARY REPORT

WO#: **1108425**
14-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8082S

Sample ID: 1108425-007bms	SampType: MS	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/15/2011	RunNo: 42422
Client ID: IOA-SS-EU09-0002	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823784

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	180	190	192.6	0	91.5	40	140				J
Aroclor 1260	640	190	192.6	467.2	91.8	60	130				
Surr: Decachlorobiphenyl	9.0		9.628		93.5	60	125				
Surr: Tetrachloro-m-xylene	9.9		9.628		103	60	125				

Sample ID: 1108425-007bmsd	SampType: MSD	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/15/2011	RunNo: 42422
Client ID: IOA-SS-EU09-0002	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823785

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	200	190	192.4	0	102	40	140	0	0	25	
Aroclor 1260	690	190	192.4	467.2	116	60	130	0	0	25	
Surr: Decachlorobiphenyl	8.7		9.622		90.0	60	125		0	25	
Surr: Tetrachloro-m-xylene	10		9.622		106	60	125		0	25	

Sample ID: lcs-23226	SampType: LCS	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/15/2011	RunNo: 42422
Client ID: LCSS	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823816

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	180	33	166.3	0	106	40	140				
Aroclor 1260	180	33	166.3	0	109	60	130				
Surr: Decachlorobiphenyl	9.2		8.317		110	60	125				
Surr: Tetrachloro-m-xylene	8.4		8.317		100	60	125				

Qualifiers:

*\/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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31628 Glendale St.
Livonia, MI 48150
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Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108425**
14-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_8082S**

Sample ID: **mb-23226**	SampType: **MBLK**	TestCode: **SW_8082S**	Units: **µg/Kg**	Prep Date: **8/15/2011**	RunNo: **42422**
Client ID: **PBS**	Batch ID: **23226**	TestNo: **SW8082**	**SW3550C**	Analysis Date: **8/24/2011**	SeqNo: **823818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33									U
Aroclor 1221	ND	33									U
Aroclor 1232	ND	33									U
Aroclor 1242	ND	33									U
Aroclor 1248	ND	33									U
Aroclor 1254	ND	33									U
Aroclor 1260	ND	33									U
Total PCBs	ND	33									
Surr: Decachlorobiphenyl	8.3		8.319		99.3	60	125				
Surr: Tetrachloro-m-xylene	7.4		8.319		88.6	60	125				

Qualifiers:

*X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: MB-23237	SampType: MBLK	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/16/2011	RunNo: 43183
Client ID: PBS	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011	SeqNo: 841551

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	160									UH
Acenaphthene	ND	160									UH
Acenaphthylene	ND	160									UH
Anthracene	ND	160									UH
Benzo(a)anthracene	ND	160									UH
Benzo(a)pyrene	ND	160									UH
Benzo(b)fluoranthene	ND	160									UH
Benzo(g,h,i)perylene	ND	160									UH
Benzo(k)fluoranthene	ND	160									UH
Chrysene	ND	160									UH
Dibenzo (a,h) anthracene	ND	160									UH
Fluoranthene	ND	160									UH
Fluorene	ND	160									UH
Indeno(1,2,3-cd)pyrene	ND	160									UH
Naphthalene	ND	160									UH
Phenanthrene	ND	160									UH
Pyrene	ND	160									UH
Surr: 2,4,6-Tribromophenol	730		832.5		88.2	35	125				H
Surr: 2-Fluorobiphenyl	760		832.5		91.3	45	105				H
Surr: 2-Fluorophenol	680		832.5		82.0	35	105				H
Surr: Nitrobenzene-d5	800		832.5		95.6	35	100				H
Surr: Phenol-d5	750		832.5		89.6	40	100				H
Surr: Terphenyl-d14	840		832.5		101	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: LCS-23237	SampType: LCS	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/16/2011	RunNo: 43183
Client ID: LCSS	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011	SeqNo: 841552

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	590	160	665.3	0	88.7	45	105				H
Acenaphthene	630	160	665.3	0	95.1	45	110				H
Acenaphthylene	620	160	665.3	0	93.6	45	105				H
Anthracene	620	160	665.3	0	93.6	55	105				H
Benzo(a)anthracene	730	160	665.3	0	110	50	110				SH
Benzo(a)pyrene	630	160	665.3	0	94.2	50	110				H
Benzo(b)fluoranthene	600	160	665.3	0	90.0	45	115				H
Benzo(g,h,i)perylene	630	160	665.3	0	94.8	40	125				H
Benzo(k)fluoranthene	720	160	665.3	0	108	45	125				H
Chrysene	660	160	665.3	0	99.4	55	110				H
Dibenzo (a,h) anthracene	690	160	665.3	0	104	40	125				H
Fluoranthene	630	160	665.3	0	95.2	55	115				H
Fluorene	650	160	665.3	0	97.7	50	110				H
Indeno(1,2,3-cd)pyrene	680	160	665.3	0	102	40	120				H
Naphthalene	590	160	665.3	0	89.3	40	105				H
Phenanthrene	610	160	665.3	0	91.5	50	110				H
Pyrene	630	160	665.3	0	94.5	45	125				H
Surr: 2,4,6-Tribromophenol	810		831.7		97.2	35	125				H
Surr: 2-Fluorobiphenyl	730		831.7		87.8	45	105				H
Surr: 2-Fluorophenol	700		831.7		83.6	35	105				H
Surr: Nitrobenzene-d5	750		831.7		89.8	35	100				H
Surr: Phenol-d5	750		831.7		90.6	40	100				H
Surr: Terphenyl-d14	790		831.7		94.4	30	125				H

Qualifiers:

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J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: 1108425-007AMS	SampType: MS	TestCode: SW_8270S	Units: µg/Kg-dry	Prep Date: 8/16/2011	RunNo: 43183
Client ID: IOA-SS-EU09-0002	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011	SeqNo: 841555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	640	190	774.4	11.13	81.3	45	105				H
Acenaphthene	690	190	774.4	57.96	81.5	45	110				H
Acenaphthylene	670	190	774.4	0	86.4	45	105				H
Anthracene	770	190	774.4	91.36	87.6	55	105				H
Benzo(a)anthracene	1,100	190	774.4	273.3	102	50	110				H
Benzo(a)pyrene	940	190	774.4	241.1	89.7	50	110				H
Benzo(b)fluoranthene	1,100	190	774.4	336.3	93.6	45	115				H
Benzo(g,h,i)perylene	660	190	774.4	94.82	73.6	40	125				H
Benzo(k)fluoranthene	900	190	774.4	109.8	102	45	125				H
Chrysene	970	190	774.4	284.4	88.8	55	110				H
Dibenzo (a,h) anthracene	690	190	774.4	34.55	84.3	40	125				H
Fluoranthene	1,100	190	774.4	577.7	69.3	55	115				H
Fluorene	700	190	774.4	52.21	84.1	50	110				H
Indeno(1,2,3-cd)pyrene	730	190	774.4	87.14	82.4	40	120				H
Naphthalene	640	190	774.4	15.74	80.3	40	105				H
Phenanthrene	920	190	774.4	400.8	66.8	50	110				H
Pyrene	1,100	190	774.4	476.0	76.3	45	125				H
Surr: 2,4,6-Tribromophenol	980		968.0		101	35	125				H
Surr: 2-Fluorobiphenyl	750		968.0		77.5	45	105				H
Surr: 2-Fluorophenol	780		968.0		80.3	35	105				H
Surr: Nitrobenzene-d5	770		968.0		79.1	35	100				H
Surr: Phenol-d5	800		968.0		82.8	40	100				H
Surr: Terphenyl-d14	910		968.0		93.9	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: **1108425**

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: 1108425-007AMSD	SampType: MSD	TestCode: SW_8270S	Units: µg/Kg-dry	Prep Date: 8/16/2011	RunNo: 43183
Client ID: IOA-SS-EU09-0002	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011	SeqNo: 841563

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	620	190	773.9	11.13	78.9	45	105	640.4	3.01	25	H
Acenaphthene	750	190	773.9	57.96	89.6	45	110	688.8	8.64	25	H
Acenaphthylene	630	190	773.9	0	81.0	45	105	669.1	6.52	25	H
Anthracene	880	190	773.9	91.36	102	55	105	769.4	13.5	25	H
Benzo(a)anthracene	1,300	190	773.9	273.3	128	50	110	1,063	17.5	25	SH
Benzo(a)pyrene	1,100	190	773.9	241.1	115	50	110	935.8	19.2	25	SH
Benzo(b)fluoranthene	1,300	190	773.9	336.3	128	45	115	1,061	22.5	25	SH
Benzo(g,h,i)perylene	570	190	773.9	94.82	61.3	40	125	664.4	15.4	25	H
Benzo(k)fluoranthene	1,000	190	773.9	109.8	120	45	125	899.8	14.3	25	H
Chrysene	1,200	190	773.9	284.4	113	55	110	971.9	17.6	25	SH
Dibenzo (a,h) anthracene	550	190	773.9	34.55	67.0	40	125	687.3	21.7	25	H
Fluoranthene	1,600	190	773.9	577.7	137	55	115	1,114	38.2	25	SRH
Fluorene	750	190	773.9	52.21	90.4	50	110	703.5	6.58	25	H
Indeno(1,2,3-cd)pyrene	660	190	773.9	87.14	73.4	40	120	725.2	10.2	25	H
Naphthalene	590	190	773.9	15.74	74.7	40	105	637.3	7.05	25	H
Phenanthrene	1,500	190	773.9	400.8	140	50	110	918.4	47.0	25	SRH
Pyrene	1,500	190	773.9	476.0	131	45	125	1,067	33.2	25	SRH
Surr: 2,4,6-Tribromophenol	940		967.3		97.1	35	125		0	25	H
Surr: 2-Fluorobiphenyl	720		967.3		74.3	45	105		0	25	H
Surr: 2-Fluorophenol	690		967.3		71.7	35	105		0	25	H
Surr: Nitrobenzene-d5	690		967.3		71.1	35	100		0	25	H
Surr: Phenol-d5	710		967.3		73.2	40	100		0	25	H
Surr: Terphenyl-d14	860		967.3		89.3	30	125		0	25	H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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QC SUMMARY REPORT

WO#: **1108425**
14-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_8270S**

Sample ID: **MB-23195**	SampType: **MBLK**	TestCode: **SW_8270S**	Units: **µg/Kg**	Prep Date: **8/11/2011**	RunNo: **43063**
Client ID: **PBS**	Batch ID: **23195**	TestNo: **SW8270C**	**SW3550C**	Analysis Date: **9/23/2011**	SeqNo: **859167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	160									UH
Acenaphthene	ND	160									UH
Acenaphthylene	ND	160									UH
Anthracene	ND	160									UH
Benzo(a)anthracene	ND	160									UH
Benzo(a)pyrene	ND	160									UH
Benzo(b)fluoranthene	ND	160									UH
Benzo(g,h,i)perylene	ND	160									UH
Benzo(k)fluoranthene	ND	160									UH
Chrysene	ND	160									UH
Dibenzo (a,h) anthracene	ND	160									UH
Fluoranthene	ND	160									UH
Fluorene	ND	160									UH
Indeno(1,2,3-cd)pyrene	ND	160									UH
Naphthalene	ND	160									UH
Phenanthrene	ND	160									UH
Pyrene	ND	160									UH
Surr: 2,4,6-Tribromophenol	750		831.1		90.6	35	125				H
Surr: 2-Fluorobiphenyl	760		831.1		91.2	45	105				H
Surr: 2-Fluorophenol	690		831.1		82.6	35	105				H
Surr: Nitrobenzene-d5	780		831.1		94.2	35	100				H
Surr: Phenol-d5	710		831.1		85.1	40	100				H
Surr: Terphenyl-d14	740		831.1		88.8	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: LCS-23195	SampType: LCS	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/11/2011	RunNo: 43063
Client ID: LCSS	Batch ID: 23195	TestNo: SW8270C	SW3550C	Analysis Date: 9/23/2011	SeqNo: 859168

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	620	160	659.6	0	94.0	45	105				H
Acenaphthene	630	160	659.6	0	96.1	45	110				H
Acenaphthylene	630	160	659.6	0	95.7	45	105				H
Anthracene	650	160	659.6	0	98.5	55	105				H
Benzo(a)anthracene	690	160	659.6	0	105	50	110				H
Benzo(a)pyrene	690	160	659.6	0	104	50	110				H
Benzo(b)fluoranthene	680	160	659.6	0	103	45	115				H
Benzo(g,h,i)perylene	700	160	659.6	0	106	40	125				H
Benzo(k)fluoranthene	710	160	659.6	0	108	45	125				H
Chrysene	700	160	659.6	0	107	55	110				H
Dibenzo (a,h) anthracene	710	160	659.6	0	107	40	125				H
Fluoranthene	690	160	659.6	0	104	55	115				H
Fluorene	670	160	659.6	0	101	50	110				H
Indeno(1,2,3-cd)pyrene	710	160	659.6	0	107	40	120				H
Naphthalene	600	160	659.6	0	91.4	40	105				H
Phenanthrene	660	160	659.6	0	99.4	50	110				H
Pyrene	710	160	659.6	0	107	45	125				H
Surr: 2,4,6-Tribromophenol	900		824.5		109	35	125				H
Surr: 2-Fluorobiphenyl	750		824.5		90.6	45	105				H
Surr: 2-Fluorophenol	700		824.5		84.5	35	105				H
Surr: Nitrobenzene-d5	800		824.5		97.5	35	100				H
Surr: Phenol-d5	740		824.5		90.2	40	100				H
Surr: Terphenyl-d14	840		824.5		102	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108425

14-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: 1108425-029AMS	SampType: MS	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/11/2011	RunNo: 43063
Client ID: ZZZZZZ	Batch ID: 23195	TestNo: SW8270C	SW3550C	Analysis Date: 9/23/2011	SeqNo: 859169

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	700	800	663.6	0	105	45	105				JSH
Acenaphthene	740	800	663.6	0	111	45	110				JSH
Acenaphthylene	710	800	663.6	0	107	45	105				JSH
Anthracene	750	800	663.6	0	113	55	105				JSH
Benzo(a)anthracene	720	800	663.6	0	109	50	110				JH
Benzo(a)pyrene	710	800	663.6	0	106	50	110				JH
Benzo(b)fluoranthene	700	800	663.6	0	105	45	115				JmH
Benzo(g,h,i)perylene	600	800	663.6	0	90.2	40	125				JH
Benzo(k)fluoranthene	850	800	663.6	0	128	45	125				SH
Chrysene	770	800	663.6	0	115	55	110				JSH
Dibenzo (a,h) anthracene	640	800	663.6	0	96.0	40	125				JH
Fluoranthene	770	800	663.6	0	116	55	115				JSH
Fluorene	760	800	663.6	0	114	50	110				JSH
Indeno(1,2,3-cd)pyrene	620	800	663.6	0	94.0	40	120				JH
Naphthalene	680	800	663.6	0	102	40	105				JH
Phenanthrene	760	800	663.6	0	115	50	110				JSH
Pyrene	790	800	663.6	0	119	45	125				JH
Surr: 2,4,6-Tribromophenol	900		829.5		108	35	125				H
Surr: 2-Fluorobiphenyl	860		829.5		104	45	105				H
Surr: 2-Fluorophenol	730		829.5		88.6	35	105				H
Surr: Nitrobenzene-d5	810		829.5		97.4	35	100				H
Surr: Phenol-d5	720		829.5		87.0	40	100				H
Surr: Terphenyl-d14	960		829.5		116	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
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QC SUMMARY REPORT

WO#: 1108425
14-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: 1108425-029AMSD	SampType: MSD	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/11/2011	RunNo: 43063
Client ID: ZZZZZZ	Batch ID: 23195	TestNo: SW8270C	SW3550C	Analysis Date: 9/23/2011	SeqNo: 859170

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	730	790	659.0	0	111	45	105	700.1	4.16	25	JSH
Acenaphthene	810	790	659.0	0	123	45	110	738.2	9.14	25	SH
Acenaphthylene	790	790	659.0	0	120	45	105	713.3	10.3	25	SH
Anthracene	850	790	659.0	0	129	55	105	749.8	12.7	25	SH
Benzo(a)anthracene	830	790	659.0	0	126	50	110	721.6	14.0	25	SH
Benzo(a)pyrene	830	790	659.0	0	126	50	110	705.0	16.1	25	SH
Benzo(b)fluoranthene	810	790	659.0	0	122	45	115	695.1	14.7	25	SH
Benzo(g,h,i)perylene	660	790	659.0	0	99.7	40	125	598.9	9.31	25	JH
Benzo(k)fluoranthene	980	790	659.0	0	149	45	125	847.7	14.8	25	SH
Chrysene	870	790	659.0	0	132	55	110	766.4	12.5	25	SH
Dibenzo (a,h) anthracene	720	790	659.0	0	109	40	125	637.0	11.8	25	JH
Fluoranthene	870	790	659.0	0	132	55	115	769.7	12.6	25	SH
Fluorene	860	790	659.0	0	131	50	110	758.1	13.2	25	SH
Indeno(1,2,3-cd)pyrene	690	790	659.0	0	105	40	120	623.8	10.1	25	JH
Naphthalene	720	790	659.0	0	110	40	105	676.8	6.85	25	JSH
Phenanthrene	880	790	659.0	0	133	50	110	763.1	14.0	25	SH
Pyrene	930	790	659.0	0	141	45	125	789.6	16.2	25	SH
Surr: 2,4,6-Tribromophenol	1,000		823.7		122	35	125		0	25	H
Surr: 2-Fluorobiphenyl	920		823.7		111	45	105		0	25	SH
Surr: 2-Fluorophenol	740		823.7		89.8	35	105		0	25	H
Surr: Nitrobenzene-d5	830		823.7		101	35	100		0	25	SH
Surr: Phenol-d5	760		823.7		92.0	40	100		0	25	H
Surr: Terphenyl-d14	1,100		823.7		134	30	125		0	25	SH

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108425

CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/11/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 20 soil samples.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample extracts for PAH analyses were analyzed beyond the holding time.

Samples 1108425-002, 004, 005, 0006, 013, 018 and 019 were analyzed at a dilution due to oily appearing extract - reporting limits elevated.

Analytical Comments for METHOD SW_8270S, SAMPLE 1108425-017A, Batch ID 23195: Some concentrations reported are above the calibration range. Extract was consumed, unable to perform additional analysis. Values reported and flagged as E are considered estimated results.

QUALITY CONTROL:

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Continuing calibration verification standard (CCV), SVOC3-9/23/11: Result for Acenaphthylene marginally exceeded the 20% criteria.

Surrogate recoveries were within control limits except as noted below:

Sample ID	2-Fluorobiphenyl	Nitrobenzene-d5	Terphenyl-d14
1108425-029AMSD	111%	101%	134%

RTI Laboratories, Inc.

Date: *17-Nov.-11*

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Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108425

CASE NARRATIVE

Batch ID 23195:

- Sample ID 1108425-029AMS recoveries exceeded control limits for 2-Methylnaphthalene (105.5%), Acenaphthene (111%), Acenaphthylene (107%), Anthracene (113%), Benzo(a)pyrene (126%), Benzo(k)fluoranthene (128%), Chrysene (115%), Fluoranthene (116%), Fluorene (114%), Naphthalene (110%) and Phenanthrene (115%).
- Sample ID 1108425-029AMSD recoveries exceeded control limits for 2-Methylnaphthalene (111%), Acenaphthene (23%), Acenaphthylene (120%), Anthracene (129%), Benzo(a)anthracene (126%), Benzo(b)fluoranthene (122%), Benzo(k)fluoranthene (149%), Chrysene (132%), Fluoranthene (132%), Fluorene (131%), Phenanthrene (133%) and Pyrene (141%).

Batch ID 23237:

- LCS-23237 recovery slightly elevated for Benzo(a)anthracene (110.05%).
- Sample ID 1108425-007AMSD recoveries and RPD results exceeded control limits for Benzo(a)anthracene (128%), Benzo(a)pyrene (115%), Benzo(b)fluoranthene (128%), Chrysene (113%), Fluoranthene (137%, RPD 38.2%), Phenanthrene (140%, RPD 47.0%), Pyrene (131%, RPD 33.2%),

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits except as noted below:

Sample ID	Decachlorobiphenyl
1108425-002	141%

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
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Project Manager: Ms. Phoebe Call
Workorder: 1108425

CASE NARRATIVE

Batch ID 23324:

- Sample ID 1108425-007CMS recoveries exceeded control limits for Lead (126%) and Manganese (203%).
- Analytical Comments for METHOD SW_6020S, SAMPLE 1108425-007CMS and MSD, Batch ID 23324: Spike recoveries for Aluminum, Calcium, Iron and Magnesium were affected by elevated analyte concentrations.

Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: _____ Date: 11/17/2011
Charles O'Bryan, Director, Quality Management

SVOC 6

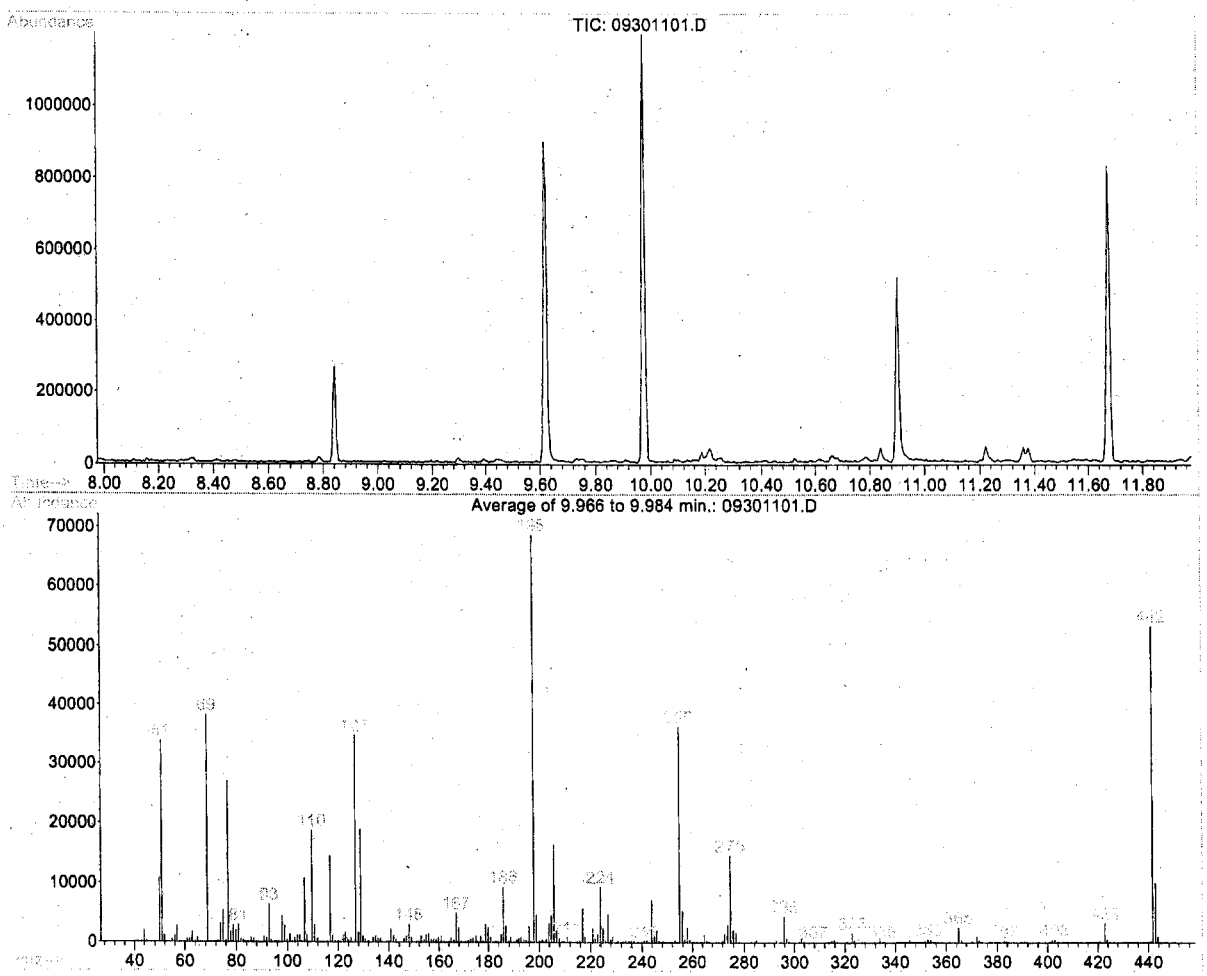
Directory: C:\HPCHEM\1\DATA\093011

Injection Log

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	09301101.d	1.	TUNE1 S6 093011	TUNE DFTPP_TUNE	30 Sep 2011 11:38
2	77	09301102.d	1.	1 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 12:07
3	78	09301103.d	1.	2.5 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 12:30
4	79	09301104.d	1.	5 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 12:53
5	80	09301105.d	1.	10 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 13:16
6	81	09301106.d	1.	15 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 13:42
7	82	09301107.d	1.	20 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 14:06
8	83	09301108.d	1.	25 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 14:29
9	84	09301109.d	1.	50 ug/mL S6 093011	ICAL SW_8270S	30 Sep 2011 14:54
10	85	09301110.d	1.	ICV1 S6 093011 – NOT used 11/14/11	ICV SW_8270A	30 Sep 2011 15:44
11	86	09301111.d	1.	ICV2	ICV SW_8270A	30 Sep 2011 16:27
12	87	09301112.d	1.	ICV2 S6 093011 – NOT used 11/15/11	ICV SW_8270A	30 Sep 2011 16:56
13	88	09301113.d	1.	MB-23237	MBLK SW_8270S	30 Sep 2011 17:19
14	89	09301114.d	1.	LCS-23237	LCS SW_8270S	30 Sep 2011 17:42
15	90	09301115.d	1.	1108425-010B	SAMP SW_8270S	30 Sep 2011 18:05
16	91	09301116.d	5.	1108425-004A	SAMP SW_8270S	30 Sep 2011 18:29
17	92	09301117.d	5.	1108425-007AMS	MS SW_8270S	30 Sep 2011 18:52
18	93	09301118.d	5.	1108425-002A	SAMP SW_8270S	30 Sep 2011 19:15
19	94	09301119.d	5.	1108425-019A	SAMP SW_8270S	30 Sep 2011 19:38
20	95	09301120.d	5.	1108425-018A	SAMP SW_8270S	30 Sep 2011 20:01
21	96	09301121.d	5.	1108425-005A	SAMP SW_8270S	30 Sep 2011 20:24
22	97	09301122.d	1.	1108425-003A	SAMP SW_8270S	30 Sep 2011 20:47
23	98	09301123.d	1.	1108425-007A	SAMP SW_8270S	30 Sep 2011 21:10
24	99	09301124.d	5.	1108425-006A	SAMP SW_8270S	30 Sep 2011 21:33
25	100	09301125.d	1.	1108425-007AMSD	SAMP SW_8270S	30 Sep 2011 21:56
26	1	09301126.d	1.	1108425-008A	SAMP SW_8270S	30 Sep 2011 22:19
27	2	09301127.d	1.	RLVS1 S6 093011	RLVS SW_8270S	30 Sep 2011 22:42

DFTPP

Data File : C:\HPCHEM\1\DATA\093011\09301101.D Vial: 76
Acq On : 30 Sep 2011 11:38 am Operator: MICHAE TRUCHAN
Sample : TUNE1 S6 093011 Inst : SVOC 6
Misc : TUNE DFTPP TUNE Multiplr: 1.00
MS Integration Params: events.e
Method : C:\HPCHEM\1\METHODS\DFTPP2.M (Chemstation Integrator)
Title : DFTPP Tune Evaluation



Spectrum Information: Average of 9.966 to 9.984 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	49.2	33812	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	110	55.7	38271	PASS
70	69	0.00	2	0.1	45	PASS
127	198	40	60	50.6	34753	PASS
197	198	0.00	1	0.2	137	PASS
198	198	100	100	100.0	68680	PASS
199	198	5	9	6.7	4594	PASS
275	198	10	30	21.3	14621	PASS
365	198	1	100	3.6	2504	PASS
441	443	0.01	100	2.4	241	PASS
442	198	40	100	77.5	53246	PASS
443	442	17	23	18.8	10036	PASS

09301101.D DFTPP2.M Tue Nov 15 12:07:19 2011

Response Factor Report SVOC 6

Method : C:\HPCHEM\1\METHODS\093011S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Sep 30 15:17:06 2011
Response via : Initial Calibration

Calibration Files
1 =09301102.D 2.5 =09301103.D 5 =09301104.D
10 =09301105.D 15 =09301106.D 25 =09301108.D

		Compound	1	2.5	5	10	15	25	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	T	N-Nitrosodimethylam	0.368	0.523	0.520	0.507	0.529	0.525	0.496	10.75
3)	T	Pyridine	0.805	0.837	0.882	0.848	0.867	0.833	0.845	2.90
4)	S	2-Fluorophenol	1.184	1.224	1.312	1.338	1.260	1.297	1.270	4.37
5)	T	N-Nitrosodiethylami	0.552	0.613	0.607	0.561	0.530	0.539	0.561	5.86
6)	S	Phenol-d5	1.354	1.502	1.362	1.293	1.298	1.225	1.307	7.72
7)	T,P	Phenol	1.313	1.400	1.301	1.292	1.241	1.158	1.248	8.19
8)	T	Aniline	1.427	1.463	1.350	1.207	1.097	1.015	1.198	16.27
9)	T,P	bis(2-Chloroethyl)	1.427	1.234	1.073	1.132	1.049	1.008	1.123	12.83
10)	T	n-Decane	1.095	1.110	1.006	0.970	0.949	0.926	0.975	9.34
11)	T,P	2-Chlorophenol	1.495	1.476	1.495	1.426	1.362	1.357	1.407	5.76
12)	T	1,3-Dichlorobenzene	1.727	1.805	1.693	1.611	1.571	1.523	1.611	7.89
13)	T	1,4-Dichlorobenzene	1.537	1.718	1.606	1.572	1.591	1.500	1.562	5.66
14)	T	Benzyl alcohol	0.659	0.755	0.687	0.685	0.660	0.640	0.664	7.12
15)	T	1,2-Dichlorobenzene	1.600	1.460	1.624	1.479	1.435	1.448	1.478	6.62
16)	T,P	2-Methylphenol	0.739	0.882	0.918	0.833	0.850	0.842	0.837	6.61
17)	T	Bis(2-chloroisoprop	1.131	1.184	1.112	0.987	0.997	1.030	1.062	7.16
18)	T,P	4-Methylphenol	0.967	1.044	0.899	0.830	0.771	0.652	0.807	19.84
19)	T,P	N-Nitrosodipropylam	0.922	0.932	0.885	0.940	0.944	1.095	0.979	8.45
20)	T	o-Toluidine	1.579	1.562	1.552	1.424	1.275	1.336	1.433	8.19
21)	T,P	Hexachloroethane	0.640	0.669	0.664	0.597	0.615	0.612	0.627	4.41
22)	I	Naphthalene-d8	----------ISTD----------							
23)	S	Nitrobenzene-d5	0.432	0.347	0.366	0.374	0.382	0.356	0.373	7.07
24)	T,P	Nitrobenzene	0.357	0.395	0.354	0.343	0.335	0.327	0.347	6.89
25)	T,P	Isophorone	0.628	0.699	0.679	0.672	0.655	0.611	0.647	5.52
26)	T,P	2-Nitrophenol	0.266	0.281	0.312	0.332	0.284	0.265	0.284	9.69
27)	T,P	2,4-Dimethylphenol	0.424	0.397	0.384	0.375	0.352	0.317	0.359	12.60
28)	T	Benzoic acid		0.157	0.168	0.187	0.176	0.200	0.188	12.43
29)	T,P	bis(2-Chloroethoxy)	0.429	0.405	0.439	0.419	0.381	0.363	0.392	9.39
30)	T,P	2,4-Dichlorophenol	0.369	0.407	0.400	0.392	0.366	0.353	0.372	7.33
31)	T	1,2,4-Trichlorobenz	0.503	0.458	0.460	0.475	0.430	0.417	0.442	9.05
32)	T	4-Chlorophenol							0.000#	-1.00
33)	T,P	Naphthalene	1.205	1.379	1.327	1.254	1.198	1.103	1.195	11.19
34)	T,P	4-Chloroaniline	0.397	0.420	0.383	0.381	0.343	0.324	0.353	14.57
35)	T	2,6-Dichlorophenol	0.381	0.374	0.386	0.383	0.373	0.349	0.365	7.57
36)	T,P	Hexachlorobutadiene	0.274	0.263	0.293	0.272	0.273	0.258	0.268	5.04
37)	T,P	4-Chloro-3-methylph	0.313	0.265	0.329	0.318	0.288	0.282	0.292	9.54
38)	T,P	2-Methylnaphthalene	0.848	0.908	0.813	0.799	0.770	0.706	0.778	11.22
39)	I	Acenaphthene-d10	----------ISTD----------							
40)	T,P	Hexachlorocyclopent		0.333	0.352	0.358	0.349	0.350	0.353	4.38
41)	T,P	1,2,4,5-Tetrachloro		0.643	0.891	0.685	0.731	0.752	0.739	10.88
42)	T,P	2,4,6-Trichlorophen	0.525	0.524	0.500	0.490	0.472	0.475	0.497	5.10
43)	T,P	2,4,5-Trichlorophen	0.579	0.538	0.542	0.511	0.513	0.514	0.528	5.40
44)	S	2-Fluorobiphenyl	1.885	1.784	1.811	1.618	1.530	1.479	1.634	10.80
45)	T,P	2-Chloronaphthalene	1.693	1.689	1.700	1.682	1.610	1.459	1.593	7.41
46)	T,P	1-Chloronaphthalene	1.599	1.609	1.433	1.281	1.200	1.175	1.337	14.64
47)	T,P	2-Nitroaniline	0.505	0.451	0.475	0.491	0.510	0.517	0.497	4.70
48)	T,P	Dimethyl phthalate	1.592	1.758	1.719	1.599	1.573	1.498	1.599	6.40
49)	T,P	2,6-Dinitrotoluene	0.336	0.388	0.401	0.395	0.392	0.387	0.388	7.00
50)	T,P	Acenaphthylene	2.242	2.239	2.240	2.205	2.068	1.993	2.118	6.82
51)	T,P	3-Nitroaniline	0.312	0.287	0.245	0.269	0.242	0.259	0.264	10.10
52)	T,P	Acenaphthene	1.419	1.377	1.311	1.287	1.198	1.161	1.256	9.27
53)	T,P	~~2,4-Dinitrophenol~~			0.103	0.164	0.165	0.202	0.176	~~23.64~~
54)	T,P	4-Nitrophenol	0.119	0.212	0.191	0.176	0.194	0.201	0.187	15.75
55)	T	Pentachlorobenzene	0.710	0.696	0.664	0.621	0.592	0.558	0.623	10.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report SVOC 6

Method : C:\HPCHEM\1\METHODS\093011S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Sep 30 15:17:06 2011
Response via : Initial Calibration

Calibration Files
1 =09301102.D 2.5 =09301103.D 5 =09301104.D
10 =09301105.D 15 =09301106.D 25 =09301108.D

		Compound	1	2.5	5	10	15	25	Avg	%RSD
56)	T,P	2,4-Dinitrotoluene	0.434	0.462	0.449	0.441	0.439	0.436	0.437	4.67
57)	T,P	Dibenzofuran	2.099	2.119	1.942	1.881	1.804	1.773	1.892	8.72
58)	T,P	2,3,4,6-Tetrachloro	0.344	0.354	0.367	0.391	0.381	0.394	0.377	6.28
59)	T,P	Diethyl phthalate	1.853	1.895	1.690	1.676	1.668	1.638	1.709	6.30
60)	T,P	4-Chlorophenyl phen	0.784	0.693	0.728	0.697	0.690	0.687	0.704	6.52
61)	T,P	Fluorene	1.514	1.495	1.349	1.214	1.127	1.119	1.257	14.14
62)	T,P	4-Nitroaniline	0.443	0.353	0.298	0.306	0.299	0.275	0.320	17.09
63)	S	2,4,6-Tribromopheno	0.200	0.264	0.253	0.244	0.263	0.269	0.255	10.10
64)	I	Phenanthrene-d10	----------ISTD----------							
65)	T,P	4,6-Dinitro-2-methy		0.121	0.138	0.178	0.187	0.198	0.177	19.51
66)	T,P	N-Nitrosodiphenylam	1.456	1.624	1.463	1.424	1.321	1.209	1.360	11.85
67)	T	Azobenzene	0.845	0.799	0.800	0.793	0.807	0.751	0.780	5.90
68)	T,P	4-Bromophenyl pheny	0.366	0.291	0.294	0.296	0.278	0.273	0.293	10.99
69)	T,P	Hexachlorobenzene	0.332	0.367	0.362	0.347	0.337	0.314	0.334	7.50
70)	T,P	Pentachlorophenol		0.201	0.181	0.227	0.208	0.210	0.204	7.12
71)	T	Pentachloronitroben	0.101	0.130	0.124	0.135	0.140	0.146	0.134	11.57
72)	T	n-Octadecane	0.458	0.500	0.434	0.428	0.406	0.352	0.411	13.08
73)	T,P	Phenanthrene	1.440	1.400	1.350	1.350	1.296	1.184	1.284	10.03
74)	T,P	Anthracene	1.356	1.475	1.356	1.352	1.261	1.242	1.297	8.95
75)	T,P	Carbazole	1.202	1.256	0.917	0.891	0.841	0.941	0.983	15.83
76)	T,P	Di-n-butyl phthalat	2.052	2.031	2.016	1.926	1.895	1.762	1.889	8.00
77)	T,P	Fluoranthene	1.357	1.500	1.394	1.390	1.299	1.188	1.313	9.71
78)	T	~~Benzidine~~	0.342	0.343	0.265	0.176	0.138	0.088	0.204	~~55.78~~
79)	I	Chrysene-d12	----------ISTD----------							
80)	T,P	Pyrene	1.677	1.593	1.675	1.611	1.506	1.501	1.559	6.21
81)	S	Terphenyl-d14	0.957	1.112	1.041	1.040	1.024	0.985	1.011	5.47
82)	T,P	Butyl benzyl phthal	0.761	0.865	0.915	0.945	0.902	0.911	0.882	6.57
83)	T,P	3,3'-Dichlorobenzid	0.525	0.501	0.524	0.535	0.500	0.497	0.507	4.54
84)	T,P	bis(2-Ethylhexyl) p	0.922	1.115	1.229	1.131	1.143	1.138	1.113	7.75
85)	T,P	Benz(a)anthracene	1.149	1.112	1.110	1.136	1.015	1.014	1.070	5.92
86)	T,P	Chrysene	1.227	1.107	1.182	1.166	1.122	1.143	1.137	5.10
87)	T,P	Di-n-octyl phthalat		1.398	1.657	1.836	1.859	1.909	1.772	10.41
88)	I	Perylene-d12	----------ISTD----------							
89)	T,P	Benzo(b)fluoranthen	1.226	1.286	1.273	1.343	1.363	1.372	1.298	4.90
90)	T,P	Benzo(k)fluoranthen	0.939	1.207	1.264	1.249	1.093	1.002	1.107	10.87
91)	T,P	Benzo(a)pyrene	0.958	1.105	1.146	1.176	1.117	1.167	1.118	6.30
92)	T,P	Indeno(1,2,3-cd)pyr	0.946	1.268	1.291	1.338	1.359	1.337	1.265	10.49
93)	T,P	Dibenz(a,h)anthrace	0.789	1.023	0.995	1.044	1.041	1.009	0.987	8.37
94)	T,P	Benzo(g,h,i)perylen	0.876	1.029	1.023	1.093	1.143	1.127	1.060	8.07

(#) = Out of Range ### Number of calibration levels exceeded format ###

Compound List Report SVOC 6

Method : C:\HPCHEM\1\METHODS\093011S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Sep 30 15:17:06 2011
Response via : Initial Calibration
Total Cpnds : 94

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dichlorobenzene-d4	152	5.48	1.000	A	3	A	B
2	T	N-Nitrosodimethylamine	74	2.48	0.453	A	3	A	B
3	T	Pyridine	79	2.52	0.460	A	3	A	B
4	S	2-Fluorophenol	112	3.84	0.700	A	3	A	B
5	T	N-Nitrosodiethylamine	102	4.11	0.750	A	3	A	B
6	S	Phenol-d5	99	4.98	0.909	A	3	A	B
7	T	Phenol	94	5.00	0.913	A	3	A	B
8	T	Aniline	93	5.06	0.924	A	2	A	B
9	T	bis(2-Chloroethyl) ether	93	5.13	0.936	A	2	A	B
10	T	n-Decane	57	5.28	0.963	A	3	A	B
11	T	2-Chlorophenol	128	5.21	0.952	A	3	A	B
12	T	1,3-Dichlorobenzene	146	5.41	0.988	A	2	A	R
13	T	1,4-Dichlorobenzene	146	5.50	1.004	A	2	A	R
14	T	Benzyl alcohol	108	5.64	1.029	A	3	A	B
15	T	1,2-Dichlorobenzene	146	5.69	1.038	A	2	A	B
16	T	2-Methylphenol	107	5.77	1.052	A	3	A	B
17	T	Bis(2-chloroisopropyl) ether	45	5.80	1.059	A	2	A	B
18	T	4-Methylphenol	108	5.95	1.086	A	3	A	B
19	T	N-Nitrosodipropylamine	43	5.96	1.087	A	3	A	B
20	T	o-Toluidine	106	6.00	1.095	A	3	A	B
21	T	Hexachloroethane	117	6.08	1.109	A	3	A	B
22	I	Naphthalene-d8	136	6.89	1.000	A	3	A	B
23	S	Nitrobenzene-d5	82	6.12	0.889	A	2	A	B
24	T	Nitrobenzene	77	6.14	0.892	A	3	A	B
25	T	Isophorone	82	6.40	0.930	A	3	A	B
26	T	2-Nitrophenol	139	6.49	0.942	A	3	A	B
27	T	2,4-Dimethylphenol	122	6.53	0.948	A	3	A	B
28	T	Benzoic acid	122	6.62	0.962	A	3	A	B
29	T	bis(2-Chloroethoxy)methane	93	6.62	0.962	A	2	A	B
30	T	2,4-Dichlorophenol	162	6.74	0.979	A	3	A	B
31	T	1,2,4-Trichlorobenzene	180	6.83	0.991	A	3	A	B
32	T	4-Chlorophenol	128	6.91	1.003	A	3	A	B
33	T	Naphthalene	128	6.91	1.003	A	3	A	B
34	T	4-Chloroaniline	127	6.97	1.013	A	3	A	B
35	T	2,6-Dichlorophenol	162	6.96	1.011	A	3	A	B
36	T	Hexachlorobutadiene	225	7.03	1.021	A	3	A	B
37	T	4-Chloro-3-methylphenol	107	7.41	1.076	A	2	A	B
38	T	2-Methylnaphthalene	142	7.57	1.100	A	3	A	B
39	I	Acenaphthene-d10	164	8.51	1.000	A	2	A	B
40	T	Hexachlorocyclopentadiene	237	7.72	0.907	A	3	A	B
41	T	1,2,4,5-Tetrachlorobenzene	216	7.73	0.908	A	3	A	B
42	T	2,4,6-Trichlorophenol	196	7.83	0.919	A	3	A	R
43	T	2,4,5-Trichlorophenol	196	7.86	0.923	A	3	A	R
44	S	2-Fluorobiphenyl	172	7.90	0.928	A	3	A	B
45	T	2-Chloronaphthalene	162	8.02	0.942	A	3	A	L
46	T	1-Chloronaphthalene	162	8.04	0.944	A	3	A	R
47	T	2-Nitroaniline	138	8.10	0.951	A	3	A	B
48	T	Dimethyl phthalate	163	8.25	0.969	A	3	A	B
49	T	2,6-Dinitrotoluene	165	8.31	0.976	A	3	A	B
50	T	Acenaphthylene	152	8.39	0.985	A	3	A	B
51	T	3-Nitroaniline	65	8.46	0.994	A	2	A	B
52	T	Acenaphthene	153	8.54	1.003	A	3	A	B
53	T	2,4-Dinitrophenol	184	8.55	1.004	L	2	A	B
54	T	4-Nitrophenol	65	8.59	1.009	A	2	A	B
55	T	Pentachlorobenzene	250	8.66	1.017	A	3	A	B
56	T	2,4-Dinitrotoluene	165	8.66	1.017	A	3	A	B
57	T	Dibenzofuran	168	8.69	1.021	A	3	A	B
58	T	2,3,4,6-Tetrachlorophenol	232	8.79	1.032	A	3	A	B
59	T	Diethyl phthalate	149	8.86	1.040	A	3	A	B
60	T	4-Chlorophenyl phenyl ether	204	8.97	1.053	A	2	A	B
61	T	Fluorene	166	8.99	1.055	A	3	A	B
62	T	4-Nitroaniline	138	8.99	1.056	A	3	A	B
63	S	2,4,6-Tribromophenol	330	9.19	1.080	A	3	A	B
64	I	Phenanthrene-d10	188	9.79	1.000	A	2	A	B

65	T	4,6-Dinitro-2-methylphenol	198	9.02	0.921	A	3	A	B
66	T	N-Nitrosodiphenylamine	169	9.07	0.926	A	2	A	B
67	T	Azobenzene	77	9.11	0.930	A	3	A	B
68	T	4-Bromophenyl phenyl ether	248	9.39	0.959	A	2	A	B
69	T	Hexachlorobenzene	284	9.47	0.967	A	2	A	B
70	T	Pentachlorophenol	266	9.63	0.983	A	3	A	B
71	T	Pentachloronitrobenzene	237	9.64	0.985	A	3	A	B
72	T	n-Octadecane	57	9.64	0.984	A	3	A	B
73	T	Phenanthrene	178	9.81	1.002	A	3	A	R
74	T	Anthracene	178	9.85	1.006	A	3	A	R
75	T	Carbazole	167	9.98	1.019	A	3	A	B
76	T	Di-n-butyl phthalate	149	10.23	1.044	A	3	A	B
77	T	Fluoranthene	202	10.81	1.104	A	3	A	B
78	T	Benzidine	184	10.91	1.114	A	3	A	B
79	I	Chrysene-d12	240	12.21	1.000	A	2	A	B
80	T	Pyrene	202	11.02	0.903	A	3	A	B
81	S	Terphenyl-d14	244	11.12	0.911	A	3	A	B
82	T	Butyl benzyl phthalate	149	11.55	0.946	A	3	A	B
83	T	3,3'-Dichlorobenzidine	252	12.14	0.994	A	3	A	B
84	T	bis(2-Ethylhexyl) phthalate	149	12.13	0.994	A	3	A	B
85	T	Benz(a)anthracene	228	12.19	0.999	A	3	A	R
86	T	Chrysene	228	12.23	1.002	A	3	A	R
87	T	Di-n-octyl phthalate	149	12.85	1.053	A	3	A	B
88	I	Perylene-d12	264	13.84	1.000	A	3	A	B
89	T	Benzo(b)fluoranthene	252	13.40	0.968	A	3	A	R
90	T	Benzo(k)fluoranthene	252	13.43	0.971	A	3	A	R
91	T	Benzo(a)pyrene	252	13.77	0.995	A	3	A	B
92	T	Indeno(1,2,3-cd)pyrene	276	15.13	1.093	A	3	A	B
93	T	Dibenz(a,h)anthracene	278	15.13	1.094	A	3	A	B
94	T	Benzo(g,h,i)perylene	276	15.50	1.120	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

093011S6.M Mon Oct 03 08:17:03 2011

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108425

Lab File ID: 09301101.D DFTPP Injection Date: 9/30/2011

Instrument ID: SVOC6 DFTPP Injection Time: 11:38

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	49.0
68	<2% of mass 69	0.0
70	<2% of mass 69	0.1
127	40-60% of mass 198	51.0
197	<1% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	6.7
275	10-30% of mass 198	21.0
365	>1% of mass 198	3.6
441	Present but less than mass 443	2.4
442	>40% of mass 198	78.0
443	17-23% of mass 442	19.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ICV2	ICV2	09301111.D	09/30/11	16:27
02	MB-23237	MB-23237	09301113.D	09/30/11	17:19
03	LCS-23237	LCS-23237	09301114.D	09/30/11	17:42
04	IOA-SS-EU13-0002	1108425-010B	09301115.D	09/30/11	18:05
05	IOA-SS-EU07-0002	1108425-004A	09301116.D	09/30/11	18:29
06	IOA-SS-EU09-0002MS	1108425-007A	09301117.D	09/30/11	18:52
07	IOA-SS-EU03-0002	1108425-002A	09301118.D	09/30/11	19:15
08	IOA-SS-EU30-0002	1108425-019A	09301119.D	09/30/11	19:38
09	IOA-SS-EU16-0002	1108425-018A	09301120.D	09/30/11	20:01
10	IOA-SS-EU02-0002	1108425-005A	09301121.D	09/30/11	20:24
11	IOA-SS-DUP01-080911	1108425-003A	09301122.D	09/30/11	20:47
12	IOA-SS-EU09-0002	1108425-007A	09301123.D	09/30/11	21:10
13	IOA-SS-EU04-0002	1108425-006A	09301124.D	09/30/11	21:33
14	IOA-SS-EU09-0002MSD	1108425-007A	09301125.D	09/30/11	21:56
15	IOA-SS-EU06-0002	1108425-008A	09301126.D	09/30/11	22:19
16	RLVS1 S6 093011	RLVS1 S6 093011	09301127.D	09/30/11	22:42

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\093011\09301111.D Vial: 86
Acq On : 30 Sep 2011 4:27 pm Operator: MICHAE TRUCHAN
Sample : ICV2 Inst : SVOC 6
Misc : ICV SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\093011S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Sep 30 15:17:06 2011
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	109	0.00
2	T	N-Nitrosodimethylamine	0.496	0.552	-11.3	114	0.00
3	T	Pyridine	0.845	0.982	-16.2	128	0.00
4	S	2-Fluorophenol	1.270	2.440	-92.1#	204#	0.00
5	T	N-Nitrosodiethylamine	0.561	0.524	6.6	106	0.00
6	S	Phenol-d5	1.307	2.548	-95.0#	226#	0.00
7	T,P	Phenol	1.248	1.182	5.3	111	0.00
8	T	Aniline	1.198	1.206	-0.7	129	0.00
9	T,P	bis(2-Chloroethyl) ether	1.123	1.103	1.8	119	0.00
10	T	n-Decane	0.975	1.041	-6.8	122	0.00
11	T,P	2-Chlorophenol	1.407	1.383	1.7	111	0.00
12	T	1,3-Dichlorobenzene	1.611	1.542	4.3	110	0.00
13	T	1,4-Dichlorobenzene	1.562	1.526	2.3	110	0.00
14	T	Benzyl alcohol	0.664	0.622	6.3	106	0.00
15	T	1,2-Dichlorobenzene	1.478	1.489	-0.7	112	0.00
16	T,P	2-Methylphenol	0.837	0.865	-3.3	112	0.00
17	T	Bis(2-chloroisopropyl) ethe	1.062	1.333	-25.5#	141	0.00
18	T,P	4-Methylphenol	0.807	0.731	9.4	122	0.00
19	T,P	N-Nitrosodipropylamine	0.979	0.946	3.4	94	0.00
20	T	o-Toluidine	1.433	1.278	10.8	104	0.00
21	T,P	Hexachloroethane	0.627	0.602	4.0	107	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	109	0.00
23	S	Nitrobenzene-d5	0.373	0.372	0.3	114	0.00
24	T,P	Nitrobenzene	0.347	0.329	5.2	110	0.00
25	T,P	Isophorone	0.647	0.610	5.7	109	0.00
26	T,P	2-Nitrophenol	0.284	0.266	6.3	110	0.00
27	T,P	2,4-Dimethylphenol	0.359	0.323	10.0	111	0.00
28	T	Benzoic acid	0.188	0.201	-6.9	110	0.00
29	T,P	bis(2-Chloroethoxy)methane	0.392	0.396	-1.0	119	0.00
30	T,P	2,4-Dichlorophenol	0.372	0.320	14.0	99	0.00
31	T	1,2,4-Trichlorobenzene	0.442	0.393	11.1	102	0.00
32	T	4-Chlorophenol	0.000	0.000#	0.0	0#	-6.91#
33	T,P	Naphthalene	1.195	1.069	10.5	105	0.00
34	T,P	4-Chloroaniline	0.353	0.326	7.6	110	0.00
35	T	2,6-Dichlorophenol	0.365	0.329	9.9	102	0.00
36	T,P	Hexachlorobutadiene	0.268	0.251	6.3	106	0.00
37	T,P	4-Chloro-3-methylphenol	0.292	0.271	7.2	105	0.00
38	T,P	2-Methylnaphthalene	0.778	0.673	13.5	104	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	108	0.00
40	T,P	Hexachlorocyclopentadiene	0.353	0.376	-6.5	116	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.739	0.682	7.7	98	0.00
42	T,P	2,4,6-Trichlorophenol	0.497	0.470	5.4	107	0.00
43	T,P	2,4,5-Trichlorophenol	0.528	0.481	8.9	101	0.00
44	S	2-Fluorobiphenyl	1.634	1.491	8.8	109	0.00
45	T,P	2-Chloronaphthalene	1.593	1.408	11.6	104	0.00
46	T,P	1-Chloronaphthalene	1.337	1.203	10.0	111	0.00
47	T,P	2-Nitroaniline	0.497	0.497	0.0	104	0.00
48	T,P	Dimethyl phthalate	1.599	1.473	7.9	106	0.00
49	T,P	2,6-Dinitrotoluene	0.388	0.373	3.9	104	0.00
50	T,P	Acenaphthylene	2.118	1.973	6.8	107	0.00
51	T,P	3-Nitroaniline	0.264	0.300	-13.6	125	0.00
52	T,P	Acenaphthene	1.256	1.141	9.2	106	0.00
53	T,P	2,4-Dinitrophenol	0.176	0.193	-9.7	103	0.00
54	T,P	4-Nitrophenol	0.187	0.188	-0.5	101	0.00
55	T	Pentachlorobenzene	0.623	0.542	13.0	105	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\093011\09301111.D Vial: 86
Acq On : 30 Sep 2011 4:27 pm Operator: MICHAE TRUCHAN
Sample : ICV2 Inst : SVOC 6
Misc : ICV SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\093011S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Sep 30 15:17:06 2011
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	T,P	2,4-Dinitrotoluene	0.437	0.411	5.9	102	0.00
57	T,P	Dibenzofuran	1.892	1.664	12.1	101	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.377	0.377	0.0	104	0.00
59	T,P	Diethyl phthalate	1.709	1.506	11.9	99	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.704	0.667	5.3	105	0.00
61	T,P	Fluorene	1.257	1.064	15.4	103	0.00
62	T,P	4-Nitroaniline	0.320	0.299	6.6	117	0.00
63	S	~~2,4,6-Tribromophenol~~	0.255	0.517	~~102.7~~#	208#	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	107	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.177	0.201	-13.6	108	0.00
66	T,P	~~N-Nitrosodiphenylamine~~	1.360	0.755	~~44.5~~#	67	0.00
67	T	Azobenzene	0.780	0.764	2.1	109	0.00
68	T,P	4-Bromophenyl phenyl ether	0.293	0.267	8.9	104	0.00
69	T,P	Hexachlorobenzene	0.334	0.311	6.9	106	0.00
70	T,P	Pentachlorophenol	0.204	0.199	2.5	101	0.00
71	T	Pentachloronitrobenzene	0.134	0.136	-1.5	99	0.00
72	T	n-Octadecane	0.411	0.346	15.8	105	0.00
73	T,P	Phenanthrene	1.284	1.140	11.2	103	0.00
74	T,P	Anthracene	1.297	1.196	7.8	103	0.00
75	T,P	Carbazole	0.983	1.053	-7.1	119	0.00
76	T,P	Di-n-butyl phthalate	1.889	1.720	8.9	104	0.00
77	T,P	Fluoranthene	1.313	1.227	6.5	110	0.00
78	T	~~Benzidine~~	0.204	0.654	~~220.6~~#	790#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	106	0.00
80	T,P	Pyrene	1.559	1.416	9.2	100	0.00
81	S	Terphenyl-d14	1.011	0.931	7.9	100	0.00
82	T,P	Butyl benzyl phthalate	0.882	0.845	4.2	98	0.00
83	T,P	~~3,3'-Dichlorobenzidine~~	0.507	0.937	~~84.8~~#	199#	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	1.113	1.071	3.8	100	0.00
85	T,P	Benz(a)anthracene	1.070	1.133	-5.9	118	0.00
86	T,P	Chrysene	1.137	1.074	5.5	99	0.00
87	T,P	Di-n-octyl phthalate	1.772	1.911	-7.8	106	0.00
88	I	Perylene-d12	1.000	1.000	0.0	105	0.00
89	T,P	Benzo(b)fluoranthene	1.298	1.249	3.8	96	0.00
90	T,P	Benzo(k)fluoranthene	1.107	1.105	0.2	116	0.00
91	T,P	Benzo(a)pyrene	1.118	1.118	0.0	101	0.00
92	T,P	Indeno(1,2,3-cd)pyrene	1.265	1.257	0.6	99	0.00
93	T,P	Dibenz(a,h)anthracene	0.987	1.074	-8.8	112	0.00
94	T,P	Benzo(g,h,i)perylene	1.060	1.108	-4.5	103	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
09301111.D 093011S6.M Tue Nov 15 12:07:46 2011 Page 2

EPA SAMPLE NO.

MB-23237

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Lab File ID: 09301113.D Lab Sample ID: MB-23237

Instrument ID: SVOC6 Date Extracted 8/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 9/30/2011

Level: (low/med) Time Analyzed 17:19

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	LCS-23237	LCS-23237	09301114.D	9/30/2011
2	OA-SS-EU13-000	1108425-010B	09301115.D	9/30/2011
3	OA-SS-EU07-000	1108425-004A	09301116.D	9/30/2011
4	A-SS-EU09-0002M	1108425-007A	09301117.D	9/30/2011
5	OA-SS-EU03-000	1108425-002A	09301118.D	9/30/2011
6	OA-SS-EU30-000	1108425-019A	09301119.D	9/30/2011
7	OA-SS-EU16-000	1108425-018A	09301120.D	9/30/2011
8	OA-SS-EU02-000	1108425-005A	09301121.D	9/30/2011
9	A-SS-DUP01-080	1108425-003A	09301122.D	9/30/2011
10	OA-SS-EU09-000	1108425-007A	09301123.D	9/30/2011
11	OA-SS-EU04-000	1108425-006A	09301124.D	9/30/2011
12	A-SS-EU09-0002M	1108425-007A	09301125.D	9/30/2011
13	OA-SS-EU06-000	1108425-008A	09301126.D	9/30/2011
14	OA-SS-EU01-000	1108425-001A	10041112.D	10/4/2011
15	ZZZZZ	1108447-001A	10041119.D	10/4/2011
16	ZZZZZ	1108447-010A	10041120.D	10/4/2011
17	ZZZZZ	1108447-007A	10041121.D	10/4/2011
18	ZZZZZ	1108447-003A	10041122.D	10/4/2011
19	ZZZZZ	1108447-009A	10041124.D	10/4/2011
20	ZZZZZ	1108447-006A	10041125.D	10/4/2011

LCS benzo(a) anthracene

COMMENTS: _____

Form 1

CLIENT SAMPLE NO.

MB-23237

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23237

Sample wt/vol: 0.03003 (g/mL) Kg Lab File ID: 09301113.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
120-82-1	1,2,4-Trichlorobenzene	160	U
106-46-7	1,4-Dichlorobenzene	160	U
95-95-4	2,4,5-Trichlorophenol	160	U
88-06-2	2,4,6-Trichlorophenol	160	U
120-83-2	2,4-Dichlorophenol	160	U
105-67-9	2,4-Dimethylphenol	160	U
51-28-5	2,4-Dinitrophenol	830	U
121-14-2	2,4-Dinitrotoluene	160	U
87-65-0	2,6-Dichlorophenol	160	U
606-20-2	2,6-Dinitrotoluene	160	U
91-58-7	2-Chloronaphthalene	160	U
95-57-8	2-Chlorophenol	160	U
91-57-6	2-Methylnaphthalene	160	U
95-48-7	2-Methylphenol	160	U
88-74-4	2-Nitroaniline	320	U
88-75-5	2-Nitrophenol	160	U
91-94-1	3,3'-Dichlorobenzidine	1000	U
99-09-2	3-Nitroaniline	320	U
534-52-1	4,6-Dinitro-2-methylphenol	320	U
101-55-3	4-Bromophenyl phenyl ether	200	U
59-50-7	4-Chloro-3-methylphenol	160	U
106-47-8	4-Chloroaniline	160	U
106-48-9	4-Chlorophenol	160	U
7005-72-3	4-Chlorophenyl phenyl ether	160	U
MEPH34	4-Methylphenol	160	U
100-01-6	4-Nitroaniline	320	U
100-02-7	4-Nitrophenol	830	U
83-32-9	Acenaphthene	160	U
208-96-8	Acenaphthylene	160	U
62-53-3	Aniline	160	U
120-12-7	Anthracene	160	U
56-55-3	Benz(a)anthracene	160	U
92-87-5	Benzidine	660	U
50-32-8	Benzo(a)pyrene	160	U
205-99-2	Benzo(b)fluoranthene	160	U

Form 1

CLIENT SAMPLE NO.

MB-23237

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23237

Sample wt/vol: 0.03003 (g/mL) Kg Lab File ID: 09301113.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	µg/Kg	Q
191-24-2	Benzo(g,h,i)perylene		160	U
207-08-9	Benzo(k)fluoranthene		160	U
65-85-0	Benzoic acid		1000	U
100-51-6	Benzyl alcohol		660	U
111-91-1	Bis(2-chloroethoxy)methane		100	U
111-44-4	Bis(2-chloroethyl) ether		160	U
108-60-1	Bis(2-chloroisopropyl) ether		160	U
117-81-7	Bis(2-ethylhexyl) phthalate		160	U
85-68-7	Butyl benzyl phthalate		160	U
86-74-8	Carbazole		160	U
218-01-9	Chrysene		160	U
53-70-3	Dibenz(a,h)anthracene		160	U
132-64-9	Dibenzofuran		160	U
84-66-2	Diethyl phthalate		160	U
131-11-3	Dimethyl phthalate		160	U
84-74-2	Di-n-butyl phthalate		160	U
117-84-0	Di-n-octyl phthalate		160	U
206-44-0	Fluoranthene		160	U
86-73-7	Fluorene		160	U
118-74-1	Hexachlorobenzene		160	U
87-68-3	Hexachlorobutadiene		50	U
77-47-4	Hexachlorocyclopentadiene		160	U
67-72-1	Hexachloroethane		160	U
193-39-5	Indeno(1,2,3-cd)pyrene		160	U
78-59-1	Isophorone		160	U
91-20-3	Naphthalene		160	U
98-95-3	Nitrobenzene		160	U
55-18-5	N-Nitrosodiethylamine		160	U
62-75-9	N-Nitrosodimethylamine		160	U
86-30-6	N-Nitrosodiphenylamine		160	U
621-64-7	N-nitrosodipropylamine		160	U
87-86-5	Pentachlorophenol		160	U
85-01-8	Phenanthrene		160	U
108-95-2	Phenol		160	U
129-00-0	Pyrene		160	U

Form 1

CLIENT SAMPLE NO.

MB-23237

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23237

Sample wt/vol: 0.03003 (g/mL) Kg Lab File ID: 09301113.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/30/2011

GC Column: ID: (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
110-86-1	Pyridine	160	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23237 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	665.3393214	0	570	86	45-110
1,4-Dichlorobenzene	665.3393214	0	570	85	35-105
2,4,5-Trichlorophenol	665.3393214	0	590	89	50-110
2,4,6-Trichlorophenol	665.3393214	0	560	85	45-110
2,4-Dichlorophenol	665.3393214	0	580	88	45-110
2,4-Dimethylphenol	665.3393214	0	580	87	30-105
2,4-Dinitrophenol	665.3393214	0	500	76	15-130
2,4-Dinitrotoluene	665.3393214	0	640	97	50-115
2,6-Dichlorophenol	665.3393214	0	570	85	50-130
2,6-Dinitrotoluene	665.3393214	0	650	97	50-110
2-Chloronaphthalene	665.3393214	0	530	80	45-105
2-Chlorophenol	665.3393214	0	590	89	45-105
2-Methylnaphthalene	665.3393214	0	590	89	45-105
2-Methylphenol	665.3393214	0	640	96	40-105
2-Nitroaniline	665.3393214	0	660	100	45-120
2-Nitrophenol	665.3393214	0	570	86	40-110
3,3'-Dichlorobenzidine	665.3393214	0	390	58	50-130
3-Nitroaniline	665.3393214	0	720	107	25-110
4,6-Dinitro-2-methylphenol	665.3393214	0	660	99	30-135
4-Bromophenyl phenyl ether	665.3393214	0	620	93	50-130
4-Chloro-3-methylphenol	665.3393214	0	590	89	45-115
4-Chloroaniline	665.3393214	0	550	83	50-130
4-Chlorophenyl phenyl ether	665.3393214	0	620	93	45-110
4-Methylphenol	665.3393214	0	650	98	40-105
4-Nitroaniline	665.3393214	0	620	94	35-115
4-Nitrophenol	665.3393214	0	620	94	15-140
Acenaphthene	665.3393214	0	630	95	45-110
Acenaphthylene	665.3393214	0	620	94	45-105
Aniline	665.3393214	0	410	62	50-130
Anthracene	665.3393214	0	620	94	55-105

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23237 Level: (low/med) LOW

Benz(a)anthracene	665.3393214	0	730	110*	50-110
Benzo(a)pyrene	665.3393214	0	630	~~94~~	50-110
Benzo(b)fluoranthene	665.3393214	0	600	90	45-115
Benzo(g,h,i)perylene	665.3393214	0	630	95	40-125
Benzo(k)fluoranthene	665.3393214	0	720	108	45-125
Benzyl alcohol	665.3393214	0	610	92	20-125
Bis(2-chloroethoxy)methane	665.3393214	0	660	100	45-110
Bis(2-chloroethyl) ether	665.3393214	0	570	86	40-105
~~Bis(2-chloroisopropyl) ether~~	665.3393214	0	770	~~116*~~	20-115
Bis(2-ethylhexyl) phthalate	665.3393214	0	710	107	45-125
Butyl benzyl phthalate	665.3393214	0	700	105	50-125
Carbazole	665.3393214	0	720	108	45-115
Chrysene	665.3393214	0	660	99	55-110
Dibenz(a,h)anthracene	665.3393214	0	690	104	40-125
Dibenzofuran	665.3393214	0	620	92	50-105
Diethyl phthalate	665.3393214	0	630	95	50-115
Dimethyl phthalate	665.3393214	0	660	99	50-110
Di-n-butyl phthalate	665.3393214	0	660	99	55-110
Di-n-octyl phthalate	665.3393214	0	760	114	40-130
Fluoranthene	665.3393214	0	630	95	55-115
Fluorene	665.3393214	0	650	98	50-110
Hexachlorobenzene	665.3393214	0	650	98	45-120
Hexachlorobutadiene	665.3393214	0	580	87	40-115
Hexachlorocyclopentadiene	665.3393214	0	710	107	40-130
Hexachloroethane	665.3393214	0	580	87	35-110
Indeno(1,2,3-cd)pyrene	665.3393214	0	680	102	40-120
Isophorone	665.3393214	0	550	82	45-110
Naphthalene	665.3393214	0	590	89	40-105
Nitrobenzene	665.3393214	0	560	84	40-115
N-Nitrosodiethylamine	665.3393214	0	570	85	40-130
N-Nitrosodimethylamine	665.3393214	0	640	97	20-115
N-Nitrosodiphenylamine	665.3393214	0	340	51	50-115
N-nitrosodipropylamine	665.3393214	0	590	89	50-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23237 Level: (low/med) LOW

Pentachlorophenol	665.3393214	0	630	94	25-120
Phenanthrene	665.3393214	0	610	92	50-110
Phenol	665.3393214	0	600	89	40-100
Pyrene	665.3393214	0	630	94	45-125
~~Pyridine~~	665.3393214	0	120	~~18~~	40-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

Instrument SVOC5

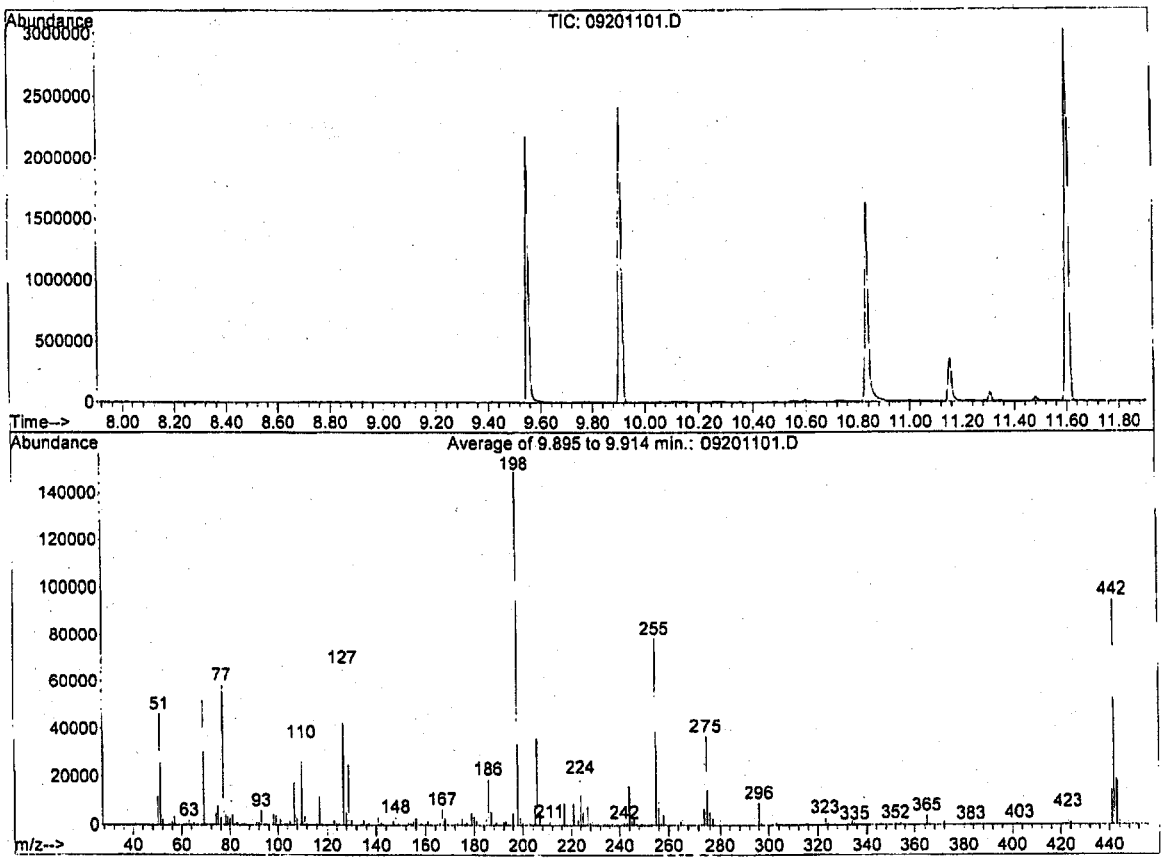
Injection Log

Directory: C:\HPCHEM\2\DATA\092011

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	09201101.d	1.	TUNE1 S5 092011	TUNE DFTPP_TUNE	20 Sep 2011 10:06
2	77	09201102.d	1.	1 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 12:47
3	78	09201103.d	1.	2.5ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 13:11
4	79	09201104.d	1.	5 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 13:34
5	80	09201105.d	1.	10 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 13:57
6	81	09201106.d	1.	15 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 14:21
7	82	09201107.d	1.	20 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 14:45
8	83	09201108.d	1.	25 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 15:09
9	84	09201109.d	1.	50 ug/ml S5 091511	ICAL SW_8270A	20 Sep 2011 15:32
10	85	09201110.d	1.	CCV1 S5 091511	CCV SW_8270A	20 Sep 2011 15:56
11	86	09201111.d	1.	RLVS S5 092011	RLVS SW_8270A	20 Sep 2011 16:42
12	87	09201112.d	1.	MB-23623	MBLK SW_8270A	20 Sep 2011 17:06
13	88	09201113.d	1.	LCS-23623	LCS SW_8270A	20 Sep 2011 17:30
14	89	09201114.d	1.	LCSD-23623	LCSD SW_8270A	20 Sep 2011 17:54
15	90	09201115.d	1.	LOD-23629 SOIL S5 092011	LOD SW_8270A	20 Sep 2011 18:18
16	91	09201116.d	1.	LOQ-23629 SOIL S5 092011	LOQ SW_8270A	20 Sep 2011 18:42
17	92	09201117.d	1.	LOD-23623 WATER S5 092011	LOD SW_8270A	20 Sep 2011 19:05
18	93	09201118.d	1.	LOQ-23623 WATER S5 092011	LOQ SW_8270A	20 Sep 2011 19:29
19	94	09201119.d	1.	1109450-001C	SAMP SW_8270A	20 Sep 2011 19:53
20	95	09201120.d	1.	1109411-002A	SAMP SW_8270A	20 Sep 2011 20:17
21	86	09201121.d	1.	RLVS2 S5 092011	RLVS SW_8270A	20 Sep 2011 20:41

DFTPP

Data File : C:\HPCHEM\2\DATA\092011\09201101.D Vial: 76
Acq On : 20 Sep 2011 10:06 am Operator: Michael Truchan
Sample : TUNE1 S5 092011 Inst : SVOC 5
Misc : TUNE DFTPP_TUNE Multiplr: 1.00
MS Integration Params: events.e
Method : C:\HPCHEM\2\METHODS\DFTPP2.M (Chemstation Integrator)
Title : DFTPP Tune Evaluation



Spectrum Information: Average of 9.895 to 9.914 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	31.0	46225	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	110	34.8	52020	PASS
70	69	0.00	2	0.4	207	PASS
127	198	40	60	44.3	66084	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	149306	PASS
199	198	5	9	6.9	10295	PASS
275	198	10	30	24.7	36873	PASS
365	198	1	100	2.6	3865	PASS
441	443	0.01	100	77.8	14413	PASS
442	198	40	100	63.5	94826	PASS
443	442	17	23	19.5	18519	PASS

09201101.D DFTPP2.M Thu Sep 22 08:33:24 2011

Response Factor Report SVOC 5

Method : C:\HPCHEM\2\METHODS\092011S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Wed Sep 21 16:07:20 2011
Response via : Initial Calibration

Calibration Files
1 =09201102.D 2.5 =09201103.D 5 =09201104.D
10 =09201105.D 15 =09201106.D 20 =09201107.D

		Compound	1	2.5	5	10	15	20	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	T	N-Nitrosodimethylam	0.590	0.677	0.720	0.717	0.703	0.716	0.685	6.30
3)	T	Pyridine	1.189	1.235	1.407	1.363	1.368	1.356	1.312	5.81
4)	S	2-Fluorophenol	1.201	1.300	1.304	1.303	1.292	1.281	1.255	5.06
5)	T	N-Nitrosodiethylami	0.456	0.496	0.542	0.533	0.518	0.515	0.507	5.29
6)	S	Phenol-d5	1.423	1.546	1.598	1.583	1.555	1.527	1.512	5.12
7)	T,P	Phenol	1.485	1.550	1.591	1.579	1.543	1.515	1.508	5.08
8)	T	Aniline	1.159	1.051	0.844	0.844	0.850	0.875	0.949	13.37
9)	T,P	bis(2-Chloroethyl)	1.268	1.349	1.419	1.383	1.360	1.342	1.321	6.40
10)	T	n-Decane	1.478	1.514	1.517	1.458	1.404	1.364	1.401	8.50
11)	T,P	2-Chlorophenol	1.317	1.405	1.457	1.457	1.429	1.433	1.399	4.04
12)	T	1,3-Dichlorobenzene	1.560	1.676	1.700	1.670	1.644	1.630	1.610	5.21
13)	T	1,4-Dichlorobenzene	1.655	1.656	1.661	1.634	1.598	1.570	1.582	6.16
14)	T	Benzyl alcohol	0.770	0.825	0.878	0.848	0.869	0.827	0.833	4.14
15)	T	1,2-Dichlorobenzene	1.552	1.581	1.587	1.557	1.543	1.522	1.517	5.41
16)	T,P	2-Methylphenol	0.985	1.031	1.085	1.052	1.024	1.010	1.011	4.98
17)	T	bis(2-Chloroisoprop	1.826	1.863	1.867	1.805	1.712	1.673	1.724	8.53
18)	T,P	4-Methylphenol	1.132	1.196	1.225	1.158	1.087	1.034	1.082	11.47
19)	T,P	N-Nitrosodipropylam	0.613	0.649	0.684	0.621	0.571	0.539	0.573	16.08
20)	T	o-Toluidine	1.392	1.259	0.976	0.885	0.895	1.011	1.133	19.89
21)	T,P	Hexachloroethane	0.556	0.579	0.579	0.575	0.560	0.558	0.556	4.42
22)	I	Naphthalene-d8	----------ISTD----------							
23)	S	Nitrobenzene-d5	0.312	0.348	0.371	0.375	0.381	0.374	0.360	6.18
24)	T,P	Nitrobenzene	0.315	0.356	0.379	0.374	0.375	0.373	0.358	6.22
25)	T,P	Isophorone	0.731	0.764	0.785	0.754	0.751	0.706	0.729	5.93
26)	T,P	2-Nitrophenol	0.135	0.169	0.234	0.253	0.230	0.222	0.209	18.47
27)	T,P	2,4-Dimethylphenol	0.334	0.366	0.386	0.370	0.360	0.343	0.348	7.93
28)	T	Benzoic acid				0.111	0.122	0.129	0.131	14.19
29)	T,P	bis(2-Chloroethoxy)	0.425	0.464	0.485	0.464	0.454	0.434	0.442	6.93
30)	T,P	2,4-Dichlorophenol	0.259	0.320	0.344	0.350	0.349	0.334	0.323	9.35
31)	T	1,2,4-Trichlorobenz	0.432	0.439	0.442	0.430	0.425	0.413	0.416	7.14
32)	T	4-Chlorophenol	0.223	0.318	0.371	0.368	0.370	0.354	0.335	14.69
33)	T,P	Naphthalene	1.291	1.307	1.279	1.219	1.177	1.125	1.174	11.01
34)	T,P	4-Chloroaniline		0.259	0.220	0.190	0.188	0.172	0.210	18.82
35)	T	2,6-Dichlorophenol	0.295	0.325	0.360	0.352	0.353	0.342	0.330	8.31
36)	T,P	Hexachlorobutadiene	0.241	0.244	0.246	0.239	0.238	0.228	0.231	7.51
37)	T,P	4-Chloro-3-methylph	0.190	0.251	0.297	0.293	0.301	0.287	0.271	13.44
38)	T,P	2-Methylnaphthalene	0.834	0.866	0.893	0.860	0.831	0.775	0.805	10.20
39)	I	Acenaphthene-d10	----------ISTD----------							
40)	T,P	Hexachlorocyclopent		0.249	0.313	0.337	0.347	0.342	0.316	10.65
41)	T,P	1,2,4,5-Tetrachloro	0.704	0.748	0.761	0.715	0.692	0.665	0.679	11.32
42)	T,P	2,4,6-Trichlorophen	0.298	0.377	0.430	0.433	0.429	0.421	0.397	11.54
43)	T,P	2,4,5-Trichlorophen	0.260	0.381	0.456	0.453	0.459	0.444	0.410	16.30
44)	S	2-Fluorobiphenyl	1.670	1.724	1.743	1.675	1.611	1.523	1.581	10.50
45)	T,P	2-Chloronaphthalene	1.488	1.671	1.711	1.595	1.567	1.482	1.528	8.78
46)	T,P	1-Chloronaphthalene	1.325	1.319	1.263	1.238	1.202	1.142	1.179	13.36
47)	T,P	2-Nitroaniline			0.311	0.361	0.387	0.390	0.370	8.27
48)	T,P	Dimethyl phthalate	1.397	1.522	1.575	1.495	1.452	1.392	1.428	7.28
49)	T,P	2,6-Dinitrotoluene		0.196	0.279	0.305	0.322	0.315	0.291	15.13
50)	T,P	Acenaphthylene	2.143	2.255	2.312	2.199	2.124	1.998	2.076	10.10
51)	T,P	3-Nitroaniline		0.142	0.165	0.158	0.151	0.132	0.163	19.95
52)	T,P	Acenaphthene	1.365	1.379	1.394	1.300	1.270	1.200	1.252	11.41
53)	T,P	2,4-Dinitrophenol			0.029	0.051	0.067	0.074	0.069	39.43
54)	T,P	4-Nitrophenol		0.093	0.110	0.142	0.146	0.141	0.133	17.03
55)	T	Pentachlorobenzene	0.603	0.645	0.653	0.608	0.582	0.552	0.578	11.28

56)	T,P	2,4-Dinitrotoluene		0.189	0.293	0.334	0.359	0.352	0.317	19.02
57)	T,P	Dibenzofuran	1.712	1.904	1.961	1.883	1.834	1.738	1.764	9.75
58)	T,P	2,3,4,6-Tetrachloro		0.227	0.329	0.357	0.371	0.359	0.332	14.74
59)	T,P	Diethyl phthalate	1.397	1.381	1.489	1.410	1.369	1.296	1.345	7.59
60)	T,P	4-Chlorophenyl phen	0.734	0.784	0.801	0.783	0.758	0.726	0.734	9.06
61)	T,P	Fluorene	1.536	1.593	1.633	1.512	1.439	1.354	1.421	13.89
62)	T,P	4-Nitroaniline	0.134	0.218	0.237	0.214	0.200	0.175	0.196	17.40
63)	S	2,4,6-Tribromopheno		0.144	0.197	0.209	0.209	0.196	0.188	12.37
64)	I	Phenanthrene-d10	----------ISTD----------							
65)	T,P	4,6-Dinitro-2-methy			0.056	0.079	0.101	0.109	0.098	26.59
66)	T,P	N-Nitrosodiphenylam	0.706	0.810	0.844	0.803	0.791	0.750	0.754	9.51
67)	T	Azobenzene	0.777	0.843	0.856	0.810	0.801	0.754	0.774	9.21
68)	T,P	4-Bromophenyl pheny	0.279	0.296	0.309	0.291	0.284	0.271	0.277	8.90
69)	T,P	Hexachlorobenzene	0.334	0.346	0.351	0.323	0.311	0.297	0.311	11.46
70)	T,P	Pentachlorophenol			0.066	0.126	0.154	0.157	0.136	26.92
71)	T	Pentachloronitroben	0.057	0.073	0.093	0.093	0.093	0.091	0.082	16.21
72)	T	n-Octadecane			0.607	0.575	0.488	0.434	0.398	0.476	21.04
73)	T,P	Phenanthrene	1.439	1.427	1.427	1.342	1.295	1.228	1.284	12.66
74)	T,P	Anthracene	1.428	1.447	1.507	1.402	1.361	1.273	1.330	11.81
75)	T,P	Carbazole	1.143	1.195	1.210	1.002	0.903	0.888	1.015	14.36
76)	T,P	Di-n-butyl phthalat	1.540	1.495	1.587	1.503	1.438	1.367	1.418	10.74
77)	T,P	Fluoranthene	1.522	1.529	1.626	1.521	1.473	1.392	1.432	11.72
78)	T	Benzidine				0.030	0.016	0.013	0.021	51.12
79)	I	Chrysene-d12	----------ISTD----------							
80)	T,P	Pyrene	1.448	1.516	1.597	1.528	1.515	1.476	1.470	6.38
81)	S	Terphenyl-d14	0.991	1.063	1.122	1.074	1.040	0.997	1.014	7.68
82)	T,P	Butyl benzyl phthal	0.559	0.601	0.650	0.638	0.635	0.627	0.612	5.19
83)	T,P	3,3'-Dichlorobenzid	0.375	0.391	0.412	0.379	0.357	0.342	0.363	8.85
84)	T,P	bis(2-Ethylhexyl) p	0.774	0.838	0.901	0.879	0.875	0.852	0.835	6.35
85)	T,P	Benz(a)anthracene	1.399	1.370	1.415	1.346	1.324	1.297	1.323	5.90
86)	T,P	Chrysene	1.257	1.281	1.296	1.224	1.221	1.175	1.202	7.07
87)	T,P	Di-n-octyl phthalat	1.215	1.318	1.442	1.477	1.496	1.473	1.405	6.77
88)	I	Perylene-d12	----------ISTD----------							
89)	T,P	Benzo(b)fluoranthen	1.354	1.382	1.528	1.468	1.426	1.358	1.386	6.25
90)	T,P	Benzo(k)fluoranthen	1.290	1.413	1.370	1.288	1.258	1.239	1.248	10.99
91)	T,P	Benzo(a)pyrene	1.166	1.228	1.297	1.284	1.256	1.243	1.224	4.89
92)	T,P	Indeno(1,2,3-cd)pyr	1.240	1.307	1.377	1.361	1.336	1.330	1.301	4.93
93)	T,P	Dibenz(a,h)anthrace	1.010	1.089	1.143	1.127	1.092	1.076	1.063	6.26
94)	T,P	Benzo(g,h,i)perylen	1.052	1.102	1.155	1.149	1.133	1.136	1.104	4.29

(#) = Out of Range ### Number of calibration levels exceeded format ###

092011S5.M Thu Sep 22 08:34:16 2011

Compound List Report SVOC 5

Method : C:\HPCHEM\2\METHODS\092011S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Wed Sep 21 16:07:20 2011
Response via : Initial Calibration
Total Cpnds : 94

PK#			Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I		1,4-Dichlorobenzene-d4	152	5.36	1.000	A	3	A	B
2		T	N-Nitrosodimethylamine	74	2.36	0.440	A	3	A	B
3		T	Pyridine	79	2.40	0.447	A	3	A	B
4	S		2-Fluorophenol	112	3.72	0.694	A	3	A	B
5		T	N-Nitrosodiethylamine	102	3.99	0.743	A	3	A	B
6	S		Phenol-d5	99	4.87	0.908	A	3	A	B
7		T	Phenol	94	4.89	0.911	A	3	A	R
8		T	Aniline	93	4.93	0.919	A	2	A	B
9		T	bis(2-Chloroethyl) ether	93	5.01	0.934	A	2	A	B
10		T	n-Decane	57	5.16	0.962	A	3	A	B
11		T	2-Chlorophenol	128	5.09	0.950	A	3	A	B
12		T	1,3-Dichlorobenzene	146	5.30	0.987	A	2	A	R
13		T	1,4-Dichlorobenzene	146	5.39	1.004	A	2	A	R
14		T	Benzyl alcohol	108	5.53	1.031	A	3	A	B
15		T	1,2-Dichlorobenzene	146	5.58	1.040	A	2	A	B
16		T	2-Methylphenol	107	5.67	1.056	A	3	A	B
17		T	bis(2-Chloroisopropyl) ether	45	5.70	1.062	A	2	A	B
18		T	4-Methylphenol	108	5.86	1.092	A	3	A	L
19		T	N-Nitrosodipropylamine	70	5.86	1.092	A	3	A	B
20		T	o-Toluidine	106	5.90	1.100	A	3	A	R
21		T	Hexachloroethane	117	5.98	1.114	A	3	A	B
22	I		Naphthalene-d8	136	6.80	1.000	A	3	A	B
23	S		Nitrobenzene-d5	82	6.02	0.886	A	2	A	B
24		T	Nitrobenzene	77	6.05	0.889	A	3	A	B
25		T	Isophorone	82	6.31	0.928	A	3	A	B
26		T	2-Nitrophenol	139	6.40	0.941	A	3	A	B
27		T	2,4-Dimethylphenol	122	6.44	0.947	A	3	A	B
28		T	Benzoic acid	122	6.55	0.964	A	3	A	R
29		T	bis(2-Chloroethoxy)methane	93	6.54	0.962	A	2	A	B
30		T	2,4-Dichlorophenol	162	6.65	0.979	A	3	A	B
31		T	1,2,4-Trichlorobenzene	180	6.74	0.991	A	3	A	B
32		T	4-Chlorophenol	128	6.76	0.995	A	3	A	B
33		T	Naphthalene	128	6.82	1.003	A	3	A	B
34		T	4-Chloroaniline	127	6.90	1.015	A	3	A	B
35		T	2,6-Dichlorophenol	162	6.88	1.012	A	3	A	B
36		T	Hexachlorobutadiene	225	6.95	1.022	A	3	A	B
37		T	4-Chloro-3-methylphenol	107	7.33	1.079	A	2	A	B
38		T	2-Methylnaphthalene	142	7.49	1.102	A	3	A	A
39	I		Acenaphthene-d10	164	8.44	1.000	A	2	A	B
40		T	Hexachlorocyclopentadiene	237	7.64	0.906	A	3	A	B
41		T	1,2,4,5-Tetrachlorobenzene	216	7.65	0.907	A	3	A	B
42		T	2,4,6-Trichlorophenol	196	7.75	0.918	A	3	A	R
43		T	2,4,5-Trichlorophenol	196	7.78	0.922	A	3	A	R
44	S		2-Fluorobiphenyl	172	7.82	0.927	A	3	A	B
45		T	2-Chloronaphthalene	162	7.94	0.941	A	3	A	B
46		T	1-Chloronaphthalene	162	7.96	0.944	A	3	A	B
47		T	2-Nitroaniline	138	8.03	0.951	A	3	A	B
48		T	Dimethyl phthalate	163	8.18	0.969	A	3	A	B
49		T	2,6-Dinitrotoluene	165	8.23	0.976	A	3	A	B
50		T	Acenaphthylene	152	8.31	0.985	A	3	A	B
51		T	3-Nitroaniline	65	8.39	0.995	A	2	A	B
52		T	Acenaphthene	153	8.47	1.003	A	3	A	B
53		T	2,4-Dinitrophenol	184	8.48	1.005	L	3	A	B
54		T	4-Nitrophenol	65	8.54	1.012	A	3	A	B
55		T	Pentachlorobenzene	250	8.59	1.017	A	3	A	B
56		T	2,4-Dinitrotoluene	165	8.59	1.018	A	3	A	B
57		T	Dibenzofuran	168	8.62	1.021	A	3	A	B
58		T	2,3,4,6-Tetrachlorophenol	232	8.72	1.033	A	3	A	B
59		T	Diethyl phthalate	149	8.78	1.041	A	3	A	B

60	T	4-Chlorophenyl phenyl ether	204	8.90	1.054	A	2	A	B
61	T	Fluorene	166	8.91	1.056	A	3	A	B
62	T	4-Nitroaniline	138	8.93	1.058	A	3	A	B
63	S	2,4,6-Tribromophenol	330	9.12	1.081	A	3	A	B
64	I	Phenanthrene-d10	188	9.72	1.000	A	2	A	R
65	T	4,6-Dinitro-2-methylphenol	198	8.95	0.920	L	3	A	B
66	T	N-Nitrosodiphenylamine	169	9.00	0.926	A	2	A	B
67	T	Azobenzene	77	9.03	0.929	A	3	A	B
68	T	4-Bromophenyl phenyl ether	248	9.32	0.959	A	2	A	B
69	T	Hexachlorobenzene	284	9.40	0.967	A	2	A	B
70	T	Pentachlorophenol	266	9.56	0.983	L	3	A	B
71	T	Pentachloronitrobenzene	237	9.57	0.984	A	3	A	B
72	T	n-Octadecane	57	9.57	0.985	Q	3	A	B
73	T	Phenanthrene	178	9.74	1.002	A	3	A	R
74	T	Anthracene	178	9.79	1.007	A	3	A	R
75	T	Carbazole	167	9.92	1.020	A	3	A	B
76	T	Di-n-butyl phthalate	149	10.16	1.045	A	3	A	B
77	T	Fluoranthene	202	10.75	1.106	A	3	A	B
78	T	Benzidine	184	10.85	1.116	A	3	A	B
79	I	Chrysene-d12	240	12.13	1.000	A	2	A	B
80	T	Pyrene	202	10.95	0.903	A	3	A	B
81	S	Terphenyl-d14	244	11.05	0.911	A	3	A	B
82	T	Butyl benzyl phthalate	149	11.49	0.947	A	3	A	B
83	T	3,3'-Dichlorobenzidine	252	12.07	0.995	A	3	A	B
84	T	bis(2-Ethylhexyl) phthalate	149	12.06	0.994	A	3	A	B
85	T	Benz(a)anthracene	228	12.12	0.999	A	3	A	R
86	T	Chrysene	228	12.16	1.002	A	3	A	R
87	T	Di-n-octyl phthalate	149	12.78	1.053	A	3	A	B
88	I	Perylene-d12	264	13.76	1.000	A	3	A	B
89	T	Benzo(b)fluoranthene	252	13.32	0.968	A	3	A	B
90	T	Benzo(k)fluoranthene	252	13.35	0.970	A	3	A	B
91	T	Benzo(a)pyrene	252	13.70	0.995	A	3	A	B
92	T	Indeno(1,2,3-cd)pyrene	276	15.03	1.092	A	3	A	B
93	T	Dibenz(a,h)anthracene	278	15.04	1.093	A	3	A	B
94	T	Benzo(g,h,i)perylene	276	15.40	1.119	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

092011S5.M Thu Sep 22 10:09:57 2011

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108425

Lab File ID: 09231101.D DFTPP Injection Date: 9/23/2011

Instrument ID: SVOC5 2 DFTPP Injection Time: 10:39

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	31.0
68	<2% of mass 69	0.0
70	<2% of mass 69	0.7
127	40-60% of mass 198	45.0
197	<1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	7.2
275	10-30% of mass 198	24.0
365	>1% of mass 198	2.2
441	Present but less than mass 443	75.0
442	>40% of mass 198	54.0
443	17-23% of mass 442	20.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV1 S5 092311	CCV1 S5 092311	09231102.D	09/23/11	11:19
02	RLVS1 S5 092311	RLVS1 S5 092311	09231103.D	09/23/11	12:19
03	MB-23195	MB-23195	09231104.D	09/23/11	12:50
04	LCS-23195	LCS-23195	09231105.D	09/23/11	13:13
05	MS	1108425-029AMS	09231106.D	09/23/11	13:36
06	MSD	1108425-029AMSD	09231107.D	09/23/11	14:00
07	IOA-SS-EU17-0002	1108425-011A	09231108.D	09/23/11	14:23
08	IOA-SS-EU31-0002	1108425-013A	09231109.D	09/23/11	15:10
09	IOA-SS-EU40-0002	1108425-014A	09231110.D	09/23/11	15:33
10	OA-SS-DUP02-081011	1108425-016A	09231111.D	09/23/11	15:57
11	IOA-SS-EU29-0002	1108425-017A	09231112.D	09/23/11	16:21
12	IOA-SS-EU41-0002	1108425-020A	09231113.D	09/23/11	16:44
13	ZZZZZ	1108A20-003A	09231114.D	09/23/11	17:11
14	ZZZZZ	1108A20-011A	09231115.D	09/23/11	17:35
15	ZZZZZ	1108A20-012A	09231116.D	09/23/11	17:58
16	ZZZZZ	1108A20-013A	09231117.D	09/23/11	18:22
17	ZZZZZ	1108A20-014A	09231118.D	09/23/11	18:45
18	ZZZZZ	1108A20-015A	09231119.D	09/23/11	19:09
19	ZZZZZ	1108A20-016A	09231120.D	09/23/11	19:32
20	ZZZZZ	1108427-001B	09231124.D	09/23/11	21:06

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\09231\09231102.D Vial: 77
Acq On : 23 Sep 2011 11:19 am Operator: Michael Truchan
Sample : CCV1 S5 092311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092011S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Wed Sep 21 16:07:20 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	0.00
2	T	N-Nitrosodimethylamine	0.685	0.671	2.0	115	0.00
3	T	Pyridine	1.312	1.204	8.2	108	0.00
4	S	2-Fluorophenol	1.255	0.644	-48.7#	62	0.00
5	T	N-Nitrosodiethylamine	0.507	0.529	-4.3	125	0.00
6	S	Phenol-d5	1.512	0.748	-50.5#	60	0.02
7	T,P	Phenol	1.508	1.594	-5.7	131	0.02
8	T	Aniline	0.949	1.359	-43.2#	158#	0.00
9	T,P	bis(2-Chloroethyl) ether	1.321	1.394	-5.5	127	0.00
10	T	n-Decane	1.401	2.039	-45.5#	185#	0.00
11	T,P	2-Chlorophenol	1.399	1.320	5.6	114	0.00
12	T	1,3-Dichlorobenzene	1.610	1.483	7.9	113	0.00
13	T	1,4-Dichlorobenzene	1.582	1.456	8.0	115	0.00
14	T	Benzyl alcohol	0.833	0.847	-1.7	119	0.00
15	T	1,2-Dichlorobenzene	1.517	1.410	7.1	115	0.00
16	T,P	2-Methylphenol	1.011	0.951	5.9	115	0.02
17	T	bis(2-Chloroisopropyl) ethe	1.724	1.579	8.4	117	0.00
18	T,P	4-Methylphenol	1.082	1.058	2.2	130	0.02
19	T,P	N-Nitrosodipropylamine	0.573	0.545	4.9	126	0.00
20	T	o-Toluidine	1.133	1.706	-50.6#	172#	0.00
21	T,P	Hexachloroethane	0.556	0.530	4.7	117	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	119	0.00
23	S	Nitrobenzene-d5	0.360	0.360	0.0	117	0.00
24	T,P	Nitrobenzene	0.358	0.356	0.6	118	0.00
25	T,P	Isophorone	0.729	0.518	28.9#	91	0.00
26	T,P	2-Nitrophenol	0.209	0.209	0.0	113	0.00
27	T,P	2,4-Dimethylphenol	0.348	0.313	10.1	115	0.00
28	T	Benzoic acid	0.131	0.085	35.1#	76	0.03
29	T,P	bis(2-Chloroethoxy)methane	0.442	0.423	4.3	121	0.00
30	T,P	2,4-Dichlorophenol	0.323	0.332	-2.8	122	0.00
31	T	1,2,4-Trichlorobenzene	0.416	0.382	8.2	115	0.00
32	T	4-Chlorophenol	0.335	0.316	5.7	109	0.02
33	T,P	Naphthalene	1.174	1.060	9.7	119	0.00
34	T,P	4-Chloroaniline	0.210	0.246	-17.1	171#	0.00
35	T	2,6-Dichlorophenol	0.330	0.329	0.3	119	0.00
36	T,P	Hexachlorobutadiene	0.231	0.206	10.8	112	0.00
37	T,P	4-Chloro-3-methylphenol	0.271	0.276	-1.8	118	0.01
38	T,P	2-Methylnaphthalene	0.805	0.734	8.8	118	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	120	0.00
40	T,P	Hexachlorocyclopentadiene	0.316	0.193	38.9#	72	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.679	0.649	4.4	126	0.00
42	T,P	2,4,6-Trichlorophenol	0.397	0.399	-0.5	118	0.00
43	T,P	2,4,5-Trichlorophenol	0.410	0.424	-3.4	119	0.01
44	S	2-Fluorobiphenyl	1.581	1.441	8.9	119	0.00
45	T,P	2-Chloronaphthalene	1.528	1.383	9.5	120	0.00
46	T,P	1-Chloronaphthalene	1.179	1.130	4.2	123	0.00
47	T,P	2-Nitroaniline	0.370	0.379	-2.4	118	0.00

(#) = Out of Range
09231102.D 092011S5.M Tue Nov 15 08:13:27 2011 Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\092311\09231102.D Vial: 77
Acq On : 23 Sep 2011 11:19 am Operator: Michael Truchan
Sample : CCV1 S5 092311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092011S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Wed Sep 21 16:07:20 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	T,P	Dimethyl phthalate	1.428	1.338	6.3	120	0.00
49	T,P	2,6-Dinitrotoluene	0.291	0.307	-5.5	118	0.00
50	T,P	Acenaphthylene	2.076	1.641	21.0#	104	0.00
51	T,P	3-Nitroaniline	0.163	0.179	-9.8	134	0.00
52	T,P	Acenaphthene	1.252	1.290	-3.0	137	0.00
53	T,P	2,4-Dinitrophenol	0.069	0.086	-24.6#	124	0.00
54	T,P	4-Nitrophenol	0.133	0.151	-13.5	127	0.02
55	T	Pentachlorobenzene	0.578	0.530	8.3	122	0.00
56	T,P	2,4-Dinitrotoluene	0.317	0.345	-8.8	118	0.00
57	T,P	Dibenzofuran	1.764	1.607	8.9	117	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.332	0.343	-3.3	116	0.00
59	T,P	Diethyl phthalate	1.345	1.250	7.1	120	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.734	0.689	6.1	119	0.00
61	T,P	Fluorene	1.421	1.446	-1.8	138	0.00
62	T,P	4-Nitroaniline	0.196	0.184	6.1	130	0.00
63	S	2,4,6-Tribromophenol	0.188	0.104	44.7#	67	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	120	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.098	0.114	-16.3	120	0.00
66	T,P	N-Nitrosodiphenylamine	0.754	0.714	5.3	123	0.00
67	T	Azobenzene	0.774	0.696	10.1	118	0.00
68	T,P	4-Bromophenyl phenyl ether	0.277	0.260	6.1	122	0.00
69	T,P	Hexachlorobenzene	0.311	0.277	10.9	120	0.00
70	T,P	Pentachlorophenol	0.136	0.133	2.2	102	0.00
71	T	Pentachloronitrobenzene	0.082	0.086	-4.9	122	0.00
72	T	n-Octadecane	0.476	0.387	18.7	132	0.00
73	T,P	Phenanthrene	1.284	1.225	4.6	130	0.00
74	T,P	Anthracene	1.330	1.299	2.3	130	0.00
75	T,P	Carbazole	1.015	0.772	23.9#	108	0.00
76	T,P	Di-n-butyl phthalate	1.418	1.244	12.3	116	0.00
77	T,P	Fluoranthene	1.432	1.263	11.8	117	0.00
78	T	Benzidine	0.021	0.055	-161.9#	594#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	118	0.00
80	T,P	Pyrene	1.470	1.591	-8.2	135	0.00
81	S	Terphenyl-d14	1.014	0.955	5.8	119	0.00
82	T,P	Butyl benzyl phthalate	0.612	0.600	2.0	116	0.00
83	T,P	3,3'-Dichlorobenzidine	0.363	0.356	1.9	131	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	0.835	0.827	1.0	120	0.00
85	T,P	Benz(a)anthracene	1.323	1.414	-6.9	134	0.00
86	T,P	Chrysene	1.202	1.288	-7.2	136	0.00
87	T,P	Di-n-octyl phthalate	1.405	1.412	-0.5	117	0.00
88	I	Perylene-d12	1.000	1.000	0.0	118	0.00
89	T,P	Benzo(b)fluoranthene	1.386	1.481	-6.9	133	0.00
90	T,P	Benzo(k)fluoranthene	1.248	1.352	-8.3	137	0.00
91	T,P	Benzo(a)pyrene	1.224	1.359	-11.0	134	0.00
92	T,P	Indeno(1,2,3-cd)pyrene	1.301	1.443	-10.9	134	0.00
93	T,P	Dibenz(a,h)anthracene	1.063	1.165	-9.6	134	0.00

(#) = Out of Range
09231102.D 092011S5.M Tue Nov 15 08:13:28 2011 Page 2

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\092311\09231102.D Vial: 77
Acq On : 23 Sep 2011 11:19 am Operator: Michael Truchan
Sample : CCV1 S5 092311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092011S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Wed Sep 21 16:07:20 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94 T,P	Benzo(g,h,i)perylene	1.104	1.227	-11.1	134	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
09231102.D 092011S5.M Tue Nov 15 08:13:29 2011 Page 3

Instrument SVOC5

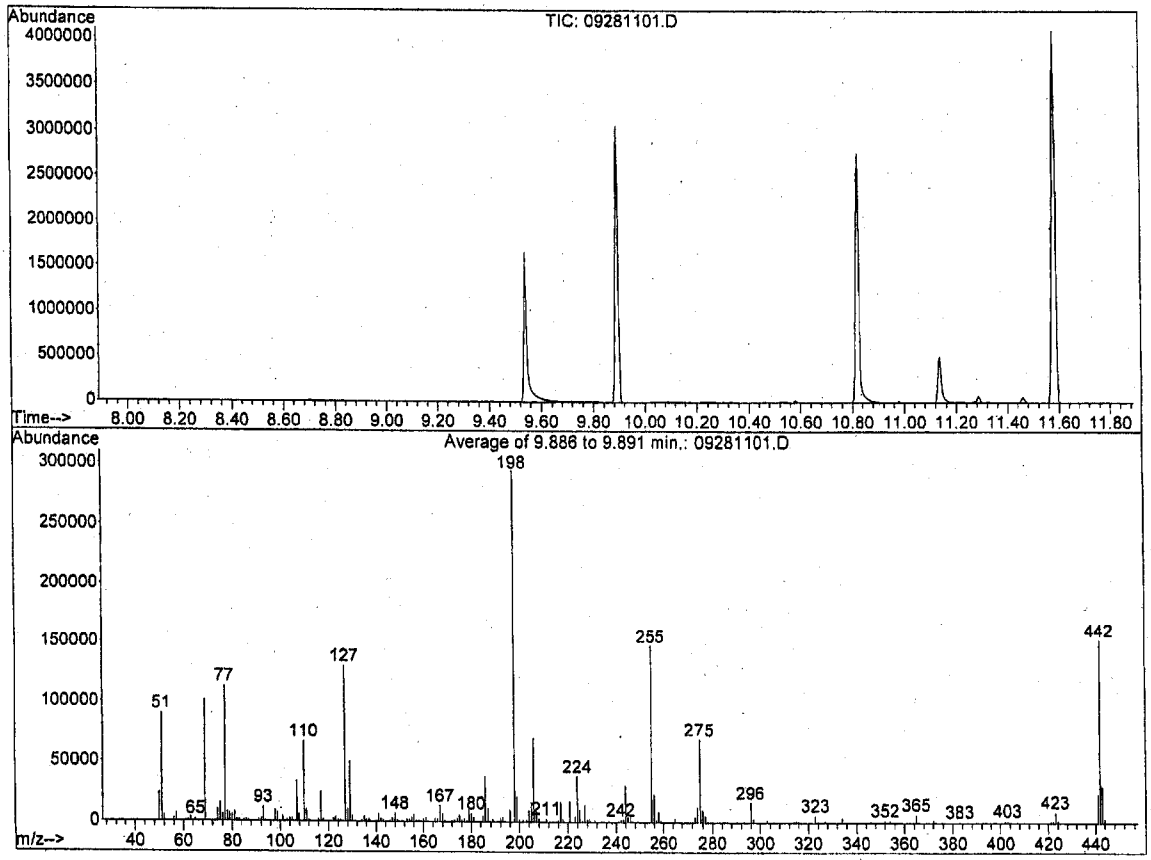
Injection Log

Directory: C:\HPCHEM\2\DATA\092811

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	09281101.d	1.	TUNE1 S5 092711	TUNE DFTPP_TUNE	28 Sep 2011 09:22
2	77	09281102.d	1.	CCV1 S5 092711 – not used MT/ch 9/29/11	CCV SW_8270A	28 Sep 2011 10:16
3	77	09281103.d	1.	1ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 11:16
4	78	09281104.d	1.	2.5ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 11:37
5	79	09281105.d	1.	5ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 12:00
6	80	09281106.d	1.	10ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 12:24
7	81	09281107.d	1.	15ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 12:48
8	82	09281108.d	1.	20ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 13:12
9	83	09281109.d	1.	25ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 13:36
10	84	09281110.d	1.	50ug/mL S5 092811	ICAL SW_8270A	28 Sep 2011 13:59
11	85	09281111.d	1.	ICV S5 092811	ICAL SW_8270A	28 Sep 2011 14:23
12	86	09281112.d	1.	RLVS1 S5 092811	RLVS SW_8270A	28 Sep 2011 14:47
13	87	09281113.d	1.	1107463-002A	SAMP SW_8270A	28 Sep 2011 15:40
14	88	09281114.d	2.	1107401-017A	SAMP SW_8270A	28 Sep 2011 16:03
15	89	09281115.d	1.	1107401-019A	SAMP SW_8270A	28 Sep 2011 16:27
16	90	09281116.d	2.	1107401-018A	SAMP SW_8270A	28 Sep 2011 16:51
17	91	09281117.d	2.	1107401-020A	SAMP SW_8270A	28 Sep 2011 17:15
18	92	09281118.d	10.	1108201-005A	SAMP SW_8270A	28 Sep 2011 17:38
19	93	09281119.d	10.	1108201-003A	SAMP SW_8270A	28 Sep 2011 18:02
20	94	09281120.d	5.	1108A20-018A	SAMP SW_8270A	28 Sep 2011 18:26
21	95	09281121.d	5.	1108A20-017A	SAMP SW_8270A	28 Sep 2011 18:50
22	96	09281122.d	1.	1108A20-019A	SAMP SW_8270A	28 Sep 2011 19:13
23	98	09281124.d	5.	1108482-001A	SAMP SW_8270A	28 Sep 2011 19:37
24	99	09281125.d	5.	1108482-002A	SAMP SW_8270A	28 Sep 2011 20:01
25	86	09281126.d	1.	RLVS2 S5 092811	RLVS SW_8270A	28 Sep 2011 20:24

DFTPP

Data File : C:\HPCHEM\2\DATA\09281\09281101.D Vial: 76
Acq On : 28 Sep 2011 9:22 am Operator: Michael Truchan
Sample : TUNE1 S5 092711 Inst : SVOC 5
Misc : TUNE DFTPP_TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS



Spectrum Information: Average of 9.886 to 9.891 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	30.6	90272	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	607	PASS
127	198	40	60	44.0	129776	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	295008	PASS
199	198	5	9	7.0	20555	PASS
275	198	10	30	23.3	68776	PASS
365	198	1	100	2.1	6316	PASS
441	443	0.01	100	77.6	22975	PASS
442	198	40	100	51.7	152660	PASS
443	442	17	23	19.4	29612	PASS

09281101.D 092811S5.M Thu Sep 29 12:20:44 2011

Response Factor Report SVOC 5

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:39:40 2011
Response via : Initial Calibration

Calibration Files
1 =09281103.D 2.5 =09281104.D 5 =09281105.D
10 =09281106.D 15 =09281107.D 20 =09281108.D

		Compound	1	2.5	5	10	15	20	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	T	N-Nitrosodimethylam	0.603	0.628	0.664	0.695	0.689	0.702	0.674	5.83
3)	T	Pyridine	1.266	1.282	1.317	1.355	1.330	1.351	1.314	2.69
4)	S	2-Fluorophenol	1.150	1.136	1.199	1.258	1.225	1.240	1.192	4.37
5)	T	N-Nitrosodiethylami	0.407	0.440	0.470	0.491	0.485	0.496	0.474	7.15
6)	S	Phenol-d5	1.435	1.411	1.476	1.527	1.496	1.505	1.460	4.24
7)	T,P	Phenol	1.479	1.506	1.552	1.607	1.586	1.590	1.527	6.12
8)	T	Aniline	1.303	1.283	1.134	1.241	1.405	1.646	1.397	16.36
9)	T,P	bis(2-Chloroethyl)	1.241	1.283	1.369	1.385	1.347	1.267	1.281	6.51
10)	T	n-Decane	1.324	1.312	1.350	1.353	1.305	1.304	1.292	5.95
11)	T,P	2-Chlorophenol	1.228	1.246	1.312	1.359	1.329	1.350	1.307	3.86
12)	T	1,3-Dichlorobenzene	1.533	1.485	1.548	1.565	1.542	1.550	1.521	3.22
13)	T	1,4-Dichlorobenzene	1.578	1.537	1.556	1.541	1.510	1.518	1.510	4.85
14)	T	Benzyl alcohol	0.636	0.674	0.766	0.789	0.783	0.815	0.760	9.03
15)	T	1,2-Dichlorobenzene	1.474	1.451	1.477	1.482	1.443	1.444	1.441	3.86
16)	T,P	2-Methylphenol	0.955	0.949	0.995	1.004	0.983	0.976	0.961	4.74
17)	T	bis(2-Chloroisoprop	1.619	1.614	1.625	1.606	1.552	1.539	1.539	8.00
18)	T,P	4-Methylphenol	1.223	1.239	1.247	1.255	1.181	1.185	1.177	8.87
19)	T,P	N-Nitrosodipropylam	0.559	0.592	0.608	0.612	0.583	0.573	0.574	6.71
20)	T	o-Toluidine	1.411	1.278	1.175	1.185	1.347	1.608	1.397	13.31
21)	T,P	Hexachloroethane	0.517	0.520	0.538	0.536	0.532	0.527	0.523	3.20
22)	I	Naphthalene-d8	----------ISTD----------							
23)	S	Nitrobenzene-d5	0.335	0.345	0.368	0.368	0.364	0.367	0.358	3.68
24)	T,P	Nitrobenzene	0.345	0.347	0.364	0.367	0.363	0.364	0.354	3.96
25)	T,P	Isophorone	0.668	0.668	0.693	0.692	0.682	0.677	0.673	3.22
26)	T,P	2-Nitrophenol	0.159	0.181	0.207	0.215	0.214	0.218	0.204	10.83
27)	T,P	2,4-Dimethylphenol	0.317	0.337	0.351	0.349	0.339	0.338	0.334	4.90
28)	T	~~Benzoic acid~~				0.075	0.083	0.084	0.058	~~56.75~~
29)	T,P	bis(2-Chloroethoxy)	0.420	0.424	0.443	0.440	0.429	0.425	0.423	4.45
30)	T,P	2,4-Dichlorophenol	0.298	0.311	0.331	0.341	0.339	0.339	0.326	5.22
31)	T	1,2,4-Trichlorobenz	0.415	0.406	0.420	0.415	0.402	0.402	0.400	5.84
32)	T	4-Chlorophenol			1.189	1.174	1.116	1.108	1.093	9.60
33)	T,P	Naphthalene	1.217	1.174	1.189	1.174	1.116	1.108	1.118	9.05
34)	~~T,P~~	~~4-Chloroaniline~~		0.291	0.234	0.221	0.250	0.301	0.288	~~20.04~~
35)	T	2,6-Dichlorophenol	0.325	0.323	0.342	0.347	0.338	0.337	0.330	5.11
36)	T,P	Hexachlorobutadiene	0.234	0.224	0.229	0.231	0.224	0.222	0.221	6.87
37)	T,P	4-Chloro-3-methylph	0.248	0.267	0.285	0.295	0.289	0.292	0.280	6.03
38)	T,P	2-Methylnaphthalene	0.804	0.811	0.827	0.813	0.781	0.774	0.773	8.38
39)	I	Acenaphthene-d10	----------ISTD----------							
40)	T,P	Hexachlorocyclopent		0.179	0.249	0.305	0.323	0.338	0.293	19.98
41)	T,P	1,2,4,5-Tetrachloro	0.687	0.700	0.723	0.710	0.680	0.676	0.669	9.10
42)	T,P	2,4,6-Trichlorophen	0.346	0.383	0.409	0.422	0.419	0.424	0.400	6.95
43)	T,P	2,4,5-Trichlorophen	0.364	0.405	0.447	0.468	0.461	0.464	0.435	8.60
44)	S	2-Fluorobiphenyl	1.579	1.609	1.643	1.598	1.518	1.517	1.516	9.18
45)	T,P	2-Chloronaphthalene	1.584	1.622	1.574	1.485	1.446	1.459	1.500	6.27
46)	T,P	1-Chloronaphthalene	1.231	1.208	1.266	1.258	1.205	1.166	1.148	13.03
47)	T,P	2-Nitroaniline			0.385	0.410	0.413	0.425	0.412	3.52
48)	T,P	Dimethyl phthalate	1.373	1.409	1.413	1.414	1.366	1.377	1.373	3.29
49)	T,P	2,6-Dinitrotoluene		0.271	0.304	0.325	0.325	0.335	0.315	7.02
50)	T,P	Acenaphthylene	2.046	2.069	2.118	2.106	2.021	1.979	1.986	7.97
51)	T,P	3-Nitroaniline		0.233	0.227	0.228	0.238	0.259	0.255	13.13
52)	T,P	Acenaphthene	1.287	1.274	1.272	1.259	1.209	1.198	1.200	9.04
53)	T,P	~~2,4-Dinitrophenol~~			0.007	0.035	0.056	0.072	0.064	~~65.68~~
54)	T,P	~~4-Nitrophenol~~	0.054	0.091	0.118	0.145	0.180	0.177	0.135	~~36.71~~
55)	T	Pentachlorobenzene	0.606	0.602	0.608	0.605	0.580	0.574	0.575	7.77

56)	T,P	2,4-Dinitrotoluene		0.291	0.346	0.390	0.393	0.406	0.373	11.14
57)	T,P	Dibenzofuran	1.844	1.864	1.864	1.837	1.750	1.740	1.740	9.57
58)	T,P	2,3,4,6-Tetrachloro		0.219	0.277	0.321	0.331	0.349	0.311	15.23
59)	T,P	Diethyl phthalate	1.304	1.309	1.337	1.331	1.281	1.291	1.282	4.78
60)	T,P	4-Chlorophenyl phen	0.734	0.762	0.775	0.767	0.738	0.739	0.728	7.89
61)	T,P	Fluorene	1.512	1.521	1.515	1.485	1.401	1.367	1.389	12.21
62)	T,P	4-Nitroaniline	0.254	0.280	0.281	0.272	0.256	0.281	0.277	5.95
63)	S	2,4,6-Tribromopheno		0.180	0.201	0.216	0.209	0.209	0.199	7.68
64)	I	Phenanthrene-d10	----------ISTD----------							
65)	T,P	~~4,6-Dinitro-2-methy~~			0.041	0.078	0.096	0.111	0.098	~~35.70~~
66)	T,P	N-Nitrosodiphenylam	0.812	0.796	0.804	0.788	0.755	0.736	0.752	9.12
67)	T	Azobenzene	0.783	0.773	0.792	0.769	0.730	0.730	0.736	8.45
68)	T,P	4-Bromophenyl pheny	0.294	0.286	0.289	0.288	0.273	0.271	0.274	7.91
69)	T,P	Hexachlorobenzene	0.323	0.320	0.323	0.318	0.304	0.297	0.302	8.99
70)	T,P	~~Pentachlorophenol~~		0.001	0.011	0.048	0.073	0.090	0.063	~~69.81~~
71)	T	Pentachloronitroben	0.076	0.088	0.095	0.095	0.091	0.090	0.087	10.06
72)	T	n-Octadecane		0.491	0.488	0.445	0.399	0.368	0.420	15.57
73)	T,P	Phenanthrene	1.371	1.322	1.339	1.291	1.227	1.197	1.229	11.43
74)	T,P	Anthracene	1.375	1.378	1.384	1.359	1.298	1.262	1.283	10.41
75)	T,P	Carbazole	1.155	1.010	1.054	1.036	1.037	1.068	1.047	5.88
76)	T,P	Di-n-butyl phthalat	1.322	1.339	1.396	1.406	1.357	1.318	1.310	8.19
77)	T,P	Fluoranthene	1.432	1.430	1.478	1.472	1.410	1.383	1.375	9.42
78)	T	~~Benzidine~~				0.253	0.248	0.286	0.320	~~32.55~~
79)	I	Chrysene-d12	----------ISTD----------							
80)	T,P	Pyrene	1.361	1.373	1.454	1.453	1.399	1.405	1.382	5.18
81)	S	Terphenyl-d14	0.974	0.987	1.025	1.026	0.980	0.981	0.972	5.86
82)	T,P	Butyl benzyl phthal	0.503	0.515	0.558	0.580	0.569	0.578	0.553	5.56
83)	T,P	3,3'-Dichlorobenzid	0.942	0.900	0.957	0.975	0.917	0.947	0.922	4.80
84)	T,P	bis(2-Ethylhexyl) p	0.673	0.708	0.766	0.791	0.777	0.779	0.747	5.76
85)	T,P	Benz(a)anthracene	1.391	1.311	1.334	1.322	1.278	1.276	1.296	4.61
86)	T,P	Chrysene	1.206	1.190	1.203	1.192	1.149	1.160	1.157	5.21
87)	T,P	Di-n-octyl phthalat	1.000	1.057	1.192	1.294	1.317	1.355	1.238	11.40
88)	I	Perylene-d12	----------ISTD----------							
89)	T,P	Benzo(b)fluoranthen	1.274	1.335	1.341	1.398	1.326	1.330	1.318	4.19
90)	T,P	Benzo(k)fluoranthen	1.287	1.247	1.312	1.249	1.224	1.193	1.199	9.73
91)	T,P	Benzo(a)pyrene	1.108	1.161	1.188	1.213	1.195	1.211	1.170	3.90
92)	T,P	Indeno(1,2,3-cd)pyr	1.201	1.236	1.300	1.335	1.311	1.332	1.278	4.42
93)	T,P	Dibenz(a,h)anthrace	1.008	1.019	1.086	1.111	1.082	1.083	1.049	5.08
94)	T,P	Benzo(g,h,i)perylen	1.001	1.040	1.093	1.127	1.116	1.139	1.086	4.56

(#) = Out of Range ### Number of calibration levels exceeded format ###

092811S5.M Thu Sep 29 12:20:50 2011

Compound List Report SVOC 5

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:39:40 2011
Response via : Initial Calibration
Total Cpnds : 94

PK#			Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I		1,4-Dichlorobenzene-d4	152	5.34	1.000	A	3	A	B
2		T	N-Nitrosodimethylamine	74	2.35	0.439	A	3	A	B
3		T	Pyridine	79	2.39	0.447	A	3	A	B
4	S		2-Fluorophenol	112	3.72	0.697	A	3	A	B
5		T	N-Nitrosodiethylamine	102	3.97	0.743	A	3	A	B
6	S		Phenol-d5	99	4.88	0.913	A	3	A	B
7		T	Phenol	94	4.90	0.917	A	3	A	R
8		T	Aniline	93	4.91	0.920	A	2	A	B
9		T	bis(2-Chloroethyl) ether	93	4.99	0.934	A	2	A	B
10		T	n-Decane	57	5.13	0.961	A	3	A	B
11		T	2-Chlorophenol	128	5.08	0.951	A	3	A	B
12		T	1,3-Dichlorobenzene	146	5.27	0.987	A	2	A	R
13		T	1,4-Dichlorobenzene	146	5.36	1.004	A	2	A	R
14		T	Benzyl alcohol	108	5.52	1.033	A	3	A	B
15		T	1,2-Dichlorobenzene	146	5.55	1.040	A	2	A	B
16		T	2-Methylphenol	107	5.67	1.061	A	3	A	B
17		T	bis(2-Chloroisopropyl) ether	45	5.68	1.062	A	2	A	B
18		T	4-Methylphenol	108	5.86	1.096	A	3	A	L
19		T	N-Nitrosodipropylamine	70	5.84	1.093	A	3	A	B
20		T	o-Toluidine	106	5.88	1.100	A	3	A	R
21		T	Hexachloroethane	117	5.95	1.114	A	3	A	B
22	I		Naphthalene-d8	136	6.78	1.000	A	3	A	B
23	S		Nitrobenzene-d5	82	6.01	0.886	A	2	A	B
24		T	Nitrobenzene	77	6.03	0.889	A	3	A	B
25		T	Isophorone	82	6.29	0.928	A	3	A	B
26		T	2-Nitrophenol	139	6.38	0.941	A	3	A	B
27		T	2,4-Dimethylphenol	122	6.43	0.949	A	3	A	B
28		T	Benzoic acid	122	6.55	0.966	A	3	A	R
29		T	bis(2-Chloroethoxy)methane	93	6.52	0.962	A	2	A	B
30		T	2,4-Dichlorophenol	162	6.65	0.981	A	3	A	B
31		T	1,2,4-Trichlorobenzene	180	6.72	0.991	A	3	A	B
32		T	4-Chlorophenol	128	6.80	1.003	A	3	A	B
33		T	Naphthalene	128	6.80	1.003	A	3	A	B
34		T	4-Chloroaniline	127	6.86	1.012	A	3	A	B
35		T	2,6-Dichlorophenol	162	6.87	1.013	A	3	A	B
36		T	Hexachlorobutadiene	225	6.93	1.022	A	3	A	B
37		T	4-Chloro-3-methylphenol	107	7.33	1.082	A	2	A	B
38		T	2-Methylnaphthalene	142	7.47	1.102	A	3	A	A
39	I		Acenaphthene-d10	164	8.42	1.000	A	2	A	B
40		T	Hexachlorocyclopentadiene	237	7.62	0.905	L	3	A	B
41		T	1,2,4,5-Tetrachlorobenzene	216	7.63	0.906	A	3	A	B
42		T	2,4,6-Trichlorophenol	196	7.73	0.919	A	3	A	R
43		T	2,4,5-Trichlorophenol	196	7.78	0.924	A	3	A	R
44	S		2-Fluorobiphenyl	172	7.80	0.927	A	3	A	B
45		T	2-Chloronaphthalene	162	7.92	0.941	A	3	A	B
46		T	1-Chloronaphthalene	162	7.94	0.944	A	3	A	B
47		T	2-Nitroaniline	138	8.01	0.951	A	3	A	B
48		T	Dimethyl phthalate	163	8.16	0.969	A	3	A	B
49		T	2,6-Dinitrotoluene	165	8.22	0.976	A	3	A	B
50		T	Acenaphthylene	152	8.29	0.985	A	3	A	B
51		T	3-Nitroaniline	65	8.37	0.995	A	2	A	B
52		T	Acenaphthene	153	8.45	1.003	A	3	A	B
53		T	2,4-Dinitrophenol	184	8.48	1.007	Q	3	A	B
54		T	4-Nitrophenol	65	8.55	1.015	L	3	A	B
55		T	Pentachlorobenzene	250	8.57	1.017	A	3	A	B
56		T	2,4-Dinitrotoluene	165	8.57	1.018	A	3	A	B
57		T	Dibenzofuran	168	8.60	1.021	A	3	A	B
58		T	2,3,4,6-Tetrachlorophenol	232	8.71	1.034	A	3	A	B
59		T	Diethyl phthalate	149	8.77	1.041	A	3	A	B

60	T	4-Chlorophenyl phenyl ether	204	8.88	1.054	A	2	A	B
61	T	Fluorene	166	8.89	1.056	A	3	A	B
62	T	4-Nitroaniline	138	8.91	1.058	A	3	A	B
63	S	2,4,6-Tribromophenol	330	9.11	1.082	A	3	A	B
64	I	Phenanthrene-d10	188	9.70	1.000	A	2	A	R
65	T	4,6-Dinitro-2-methylphenol	198	8.94	0.921	L	3	A	B
66	T	N-Nitrosodiphenylamine	169	8.98	0.926	A	2	A	B
67	T	Azobenzene	77	9.02	0.929	A	3	A	B
68	T	4-Bromophenyl phenyl ether	248	9.30	0.958	A	2	A	B
69	T	Hexachlorobenzene	284	9.38	0.966	A	2	A	B
70	T	Pentachlorophenol	266	9.55	0.985	L	3	A	B
71	T	Pentachloronitrobenzene	237	9.55	0.984	A	3	A	B
72	T	n-Octadecane	57	9.55	0.984	A	3	A	B
73	T	Phenanthrene	178	9.72	1.002	A	3	A	R
74	T	Anthracene	178	9.77	1.007	A	3	A	R
75	T	Carbazole	167	9.89	1.020	A	3	A	B
76	T	Di-n-butyl phthalate	149	10.14	1.045	A	3	A	B
77	T	Fluoranthene	202	10.73	1.106	A	3	A	B
78	T	Benzidine	184	10.82	1.116	Q	3	A	B
79	I	Chrysene-d12	240	12.11	1.000	A	2	A	B
80	T	Pyrene	202	10.93	0.903	A	3	A	B
81	S	Terphenyl-d14	244	11.03	0.911	A	3	A	B
82	T	Butyl benzyl phthalate	149	11.46	0.947	A	3	A	B
83	T	3,3'-Dichlorobenzidine	252	12.05	0.995	A	3	A	B
84	T	bis(2-Ethylhexyl) phthalate	149	12.03	0.994	A	3	A	B
85	T	Benz(a)anthracene	228	12.09	0.999	A	3	A	R
86	T	Chrysene	228	12.14	1.002	A	3	A	R
87	T	Di-n-octyl phthalate	149	12.75	1.053	A	3	A	B
88	I	Perylene-d12	264	13.74	1.000	A	3	A	B
89	T	Benzo(b)fluoranthene	252	13.30	0.968	A	3	A	B
90	T	Benzo(k)fluoranthene	252	13.33	0.970	A	3	A	B
91	T	Benzo(a)pyrene	252	13.67	0.995	A	3	A	B
92	T	Indeno(1,2,3-cd)pyrene	276	15.00	1.092	A	3	A	B
93	T	Dibenz(a,h)anthracene	278	15.01	1.093	A	3	A	B
94	T	Benzo(g,h,i)perylene	276	15.36	1.118	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

092811S5.M Thu Sep 29 12:21:06 2011

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108425

Lab File ID: 10041101.D DFTPP Injection Date: 10/4/2011

Instrument ID: SVOC5 2 DFTPP Injection Time: 11:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	32.0
68	<2% of mass 69	0.0
70	<2% of mass 69	0.3
127	40-60% of mass 198	45.0
197	<1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	7.1
275	10-30% of mass 198	23.0
365	>1% of mass 198	2.1
441	Present but less than mass 443	74.0
442	>40% of mass 198	51.0
443	17-23% of mass 442	20.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV1 S5 100411	CCV1 S5 100411	10041102.D	10/04/11	11:39
02	RLVS S5 100411	RLVS S5 100411	10041103.D	10/04/11	12:24
03	MB-23629	MB-23629	10041104.D	10/04/11	12:48
04	LCS-23629	LCS-23629	10041105.D	10/04/11	13:11
05	ZZZZZ	1108447-011A	10041107.D	10/04/11	13:58
06	ZZZZZ	1109174-003B	10041109.D	10/04/11	14:46
07	ZZZZZ	1109254-002B	10041110.D	10/04/11	15:10
08	IOA-SS-EU01-0002	1108425-001A	10041112.D	10/04/11	15:57
09	ZZZZZ	1109264-005B	10041113.D	10/04/11	16:20
10	ZZZZZ	1109264-006B	10041114.D	10/04/11	16:44
11	ZZZZZ	1109264-009B	10041115.D	10/04/11	17:08
12	ZZZZZ	1109411-001A	10041116.D	10/04/11	17:31
13	ZZZZZ	1109406-002A	10041117.D	10/04/11	17:55
14	ZZZZZ	1109406-001A	10041118.D	10/04/11	18:19
15	ZZZZZ	1108447-001A	10041119.D	10/04/11	18:42
16	ZZZZZ	1108447-010A	10041120.D	10/04/11	19:06
17	ZZZZZ	1108447-007A	10041121.D	10/04/11	19:30
18	ZZZZZ	1108447-003A	10041122.D	10/04/11	19:53
19	ZZZZZ	1108447-009A	10041124.D	10/04/11	20:41
20	ZZZZZ	1108447-006A	10041125.D	10/04/11	21:04

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00
2	T	N-Nitrosodimethylamine	0.674	0.723	-7.3	102	0.00
3	T	Pyridine	1.314	1.323	-0.7	100	0.00
4	S	2-Fluorophenol	1.192	1.206	-1.2	100	0.00
5	T	N-Nitrosodiethylamine	0.474	0.523	-10.3	105	0.00
6	S	Phenol-d5	1.460	1.493	-2.3	101	0.00
7	T,P	Phenol	1.527	1.568	-2.7	101	0.00
8	T	~~Aniline~~	1.397	1.857	~~-32.9#~~	106	0.00
9	T,P	bis(2-Chloroethyl) ether	1.281	1.185	7.5	99	0.00
10	T	n-Decane	1.292	1.209	6.4	96	0.00
11	T,P	2-Chlorophenol	1.307	1.358	-3.9	101	0.00
12	T	1,3-Dichlorobenzene	1.521	1.531	-0.7	101	0.00
13	T	1,4-Dichlorobenzene	1.510	1.493	1.1	101	0.00
14	T	Benzyl alcohol	0.760	0.854	-12.4	104	0.00
15	T	1,2-Dichlorobenzene	1.441	1.436	0.3	100	0.00
16	T,P	2-Methylphenol	0.961	0.975	-1.5	102	0.00
17	T	bis(2-Chloroisopropyl) ethe	1.539	1.479	3.9	99	0.00
18	T,P	4-Methylphenol	1.177	1.152	2.1	101	0.00
19	T,P	N-Nitrosodipropylamine	0.574	0.594	-3.5	105	0.00
20	T	~~o-Toluidine~~	1.397	1.755	~~>25.6#~~	106	0.00
21	T,P	Hexachloroethane	0.523	0.526	-0.6	100	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	102	0.00
23	S	Nitrobenzene-d5	0.358	0.362	-1.1	101	0.00
24	T,P	Nitrobenzene	0.354	0.354	0.0	102	0.00
25	T,P	Isophorone	0.673	0.677	-0.6	102	0.00
26	T,P	2-Nitrophenol	0.204	0.220	-7.8	100	0.00
27	T,P	2,4-Dimethylphenol	0.334	0.339	-1.5	102	0.00
28	T	~~Benzoic acid~~	0.058	0.034	~~41.4#~~	84	0.03
29	T,P	bis(2-Chloroethoxy)methane	0.423	0.421	0.5	101	0.00
30	T,P	2,4-Dichlorophenol	0.326	0.337	-3.4	101	0.00
31	T	1,2,4-Trichlorobenzene	0.400	0.394	1.5	101	0.00
32	T	~~4-Chlorophenol~~	1.093	0.000	~~100.0#~~	0#	-6.80#
33	T,P	Naphthalene	1.118	1.046	6.4	100	0.00
34	T,P	~~4-Chloroaniline~~	0.288	0.419	~~-45.5#~~	113	0.00
35	T	2,6-Dichlorophenol	0.330	0.329	0.3	101	0.00
36	T,P	Hexachlorobutadiene	0.221	0.213	3.6	99	0.00
37	T,P	4-Chloro-3-methylphenol	0.280	0.295	-5.4	103	0.00
38	T,P	2-Methylnaphthalene	0.773	0.748	3.2	102	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00
40	T,P	Hexachlorocyclopentadiene	0.293	0.265	9.6	81	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.669	0.641	4.2	102	0.00
42	T,P	2,4,6-Trichlorophenol	0.400	0.417	-4.2	102	0.00
43	T,P	2,4,5-Trichlorophenol	0.435	0.462	-6.2	103	0.00
44	S	2-Fluorobiphenyl	1.516	1.438	5.1	101	0.00
45	T,P	2-Chloronaphthalene	1.500	1.406	6.3	96	0.00
46	T,P	1-Chloronaphthalene	1.148	1.118	2.6	112	0.00
47	T,P	2-Nitroaniline	0.412	0.429	-4.1	104	0.00

(#) = Out of Range

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	T,P	Dimethyl phthalate	1.373	1.396	-1.7	106	0.00
49	T,P	2,6-Dinitrotoluene	0.315	0.335	-6.3	104	0.00
50	T,P	Acenaphthylene	1.986	1.922	3.2	102	0.00
51	T,P	~~3-Nitroaniline~~	0.255	0.333	~~-30.6#~~	121	0.00
52	T,P	Acenaphthene	1.200	1.137	5.2	103	0.00
53	T,P	~~2,4-Dinitrophenol~~	0.064	0.108	~~-68.8#~~	125	0.00
54	T,P	~~4-Nitrophenol~~	0.135	0.193	~~-43.0#~~	109	0.01
55	T	Pentachlorobenzene	0.575	0.552	4.0	103	0.00
56	T,P	2,4-Dinitrotoluene	0.373	0.410	-9.9	104	0.00
57	T,P	Dibenzofuran	1.740	1.672	3.9	104	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.311	0.365	-17.4	107	0.00
59	T,P	Diethyl phthalate	1.282	1.284	-0.2	104	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.728	0.713	2.1	103	0.00
61	T,P	Fluorene	1.389	1.285	7.5	102	0.00
62	T,P	4-Nitroaniline	0.277	0.330	-19.1	112	0.00
63	S	2,4,6-Tribromophenol	0.199	0.203	-2.0	104	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	104	0.00
65	T,P	~~4,6-Dinitro-2-methylphenol~~	0.098	0.130	~~-32.7#~~	108	0.00
66	T,P	N-Nitrosodiphenylamine	0.752	0.709	5.7	102	0.00
67	T	Azobenzene	0.736	0.695	5.6	102	0.00
68	T,P	4-Bromophenyl phenyl ether	0.274	0.264	3.6	104	0.00
69	T,P	Hexachlorobenzene	0.302	0.286	5.3	103	0.00
70	T,P	~~Pentachlorophenol~~	0.063	0.124	~~-96.8#~~	122	0.00
71	T	Pentachloronitrobenzene	0.087	0.086	1.1	105	0.00
72	T	~~n-Octadecane~~	0.420	0.328	~~-21.9#~~	104	0.00
73	T,P	Phenanthrene	1.229	1.130	8.1	103	0.00
74	T,P	Anthracene	1.283	1.213	5.5	104	0.00
75	T,P	Carbazole	1.047	1.113	-6.3	108	0.00
76	T,P	Di-n-butyl phthalate	1.310	1.309	0.1	107	0.00
77	T,P	Fluoranthene	1.375	1.337	2.8	106	0.00
78	T	~~Benzidine~~	0.320	0.519	~~-62.2#~~	173#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	105	0.01
80	T,P	Pyrene	1.382	1.377	0.4	104	0.00
81	S	Terphenyl-d14	0.972	0.953	2.0	105	0.00
82	T,P	Butyl benzyl phthalate	0.553	0.595	-7.6	108	0.00
83	T,P	3,3'-Dichlorobenzidine	0.922	0.871	5.5	101	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	0.747	0.831	-11.2	113	0.00
85	T,P	Benz(a)anthracene	1.296	1.275	1.6	106	0.01
86	T,P	Chrysene	1.157	1.121	3.1	104	0.01
87	T,P	Di-n-octyl phthalate	1.238	1.465	-18.3	112	0.00
88	I	Perylene-d12	1.000	1.000	0.0	103	0.02
89	T,P	Benzo(b)fluoranthene	1.318	1.405	-6.6	109	0.02
90	T,P	Benzo(k)fluoranthene	1.199	1.068	10.9	96	0.02
91	T,P	Benzo(a)pyrene	1.170	1.216	-3.9	105	0.02
92	T,P	Indeno(1,2,3-cd)pyrene	1.278	1.267	0.9	100	0.03
93	T,P	Dibenz(a,h)anthracene	1.049	1.035	1.3	101	0.02

(#) = Out of Range

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94 T,P	Benzo(g,h,i)perylene	1.086	1.072	1.3	98	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
10041102.D 092811S5.M Tue Nov 15 08:30:55 2011 Page 3

4B

EPA SAMPLE NO.

MB-23195

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Lab File ID: 09231104.D Lab Sample ID: MB-23195

Instrument ID: SVOC5 Date Extracted 8/11/2011

Matrix: (soil/water) SOIL Date Analyzed: 9/23/2011

Level: (low/med) Time Analyzed 12:50

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	LCS-23195	LCS-23195	09231105.D	9/23/2011
2	MS	1108425-029AMS	09231106.D	9/23/2011
3	MSD	1108425-029AMSD	09231107.D	9/23/2011
4	OA-SS-EU17-000	1108425-011A	09231108.D	9/23/2011
5	OA-SS-EU31-000	1108425-013A	09231109.D	9/23/2011
6	OA-SS-EU40-000	1108425-014A	09231110.D	9/23/2011
7	A-SS-DUP02-081	1108425-016A	09231111.D	9/23/2011
8	OA-SS-EU29-000	1108425-017A	09231112.D	9/23/2011
9	OA-SS-EU41-000	1108425-020A	09231113.D	9/23/2011

COMMENTS: _____

_____

page 1 of 2

FORM IV SW_8270S

Form 1

CLIENT SAMPLE NO.

MB-23195

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23195

Sample wt/vol: 0.03008 (g/mL) Kg Lab File ID: 09231104.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
120-82-1	1,2,4-Trichlorobenzene	160	U
106-46-7	1,4-Dichlorobenzene	160	U
95-95-4	2,4,5-Trichlorophenol	160	U
88-06-2	2,4,6-Trichlorophenol	160	U
120-83-2	2,4-Dichlorophenol	160	U
105-67-9	2,4-Dimethylphenol	160	U
51-28-5	2,4-Dinitrophenol	830	U
121-14-2	2,4-Dinitrotoluene	160	U
87-65-0	2,6-Dichlorophenol	160	U
606-20-2	2,6-Dinitrotoluene	160	U
91-58-7	2-Chloronaphthalene	160	U
95-57-8	2-Chlorophenol	160	U
91-57-6	2-Methylnaphthalene	160	U
95-48-7	2-Methylphenol	160	U
88-74-4	2-Nitroaniline	320	U
88-75-5	2-Nitrophenol	160	U
91-94-1	3,3'-Dichlorobenzidine	1000	U
99-09-2	3-Nitroaniline	320	U
534-52-1	4,6-Dinitro-2-methylphenol	320	U
101-55-3	4-Bromophenyl phenyl ether	200	U
59-50-7	4-Chloro-3-methylphenol	160	U
106-47-8	4-Chloroaniline	160	U
106-48-9	4-Chlorophenol	160	U
7005-72-3	4-Chlorophenyl phenyl ether	160	U
MEPH34	4-Methylphenol	160	U
100-01-6	4-Nitroaniline	320	U
100-02-7	4-Nitrophenol	830	U
83-32-9	Acenaphthene	160	U
208-96-8	Acenaphthylene	160	U
62-53-3	Aniline	160	U
120-12-7	Anthracene	160	U
56-55-3	Benz(a)anthracene	160	U
92-87-5	Benzidine	660	U
50-32-8	Benzo(a)pyrene	160	U
205-99-2	Benzo(b)fluoranthene	160	U

Form 1

CLIENT SAMPLE NO.

MB-23195

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23195

Sample wt/vol: 0.03008 (g/mL) Kg Lab File ID: 09231104.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
191-24-2	Benzo(g,h,i)perylene	160	U
207-08-9	Benzo(k)fluoranthene	160	U
65-85-0	Benzoic acid	1000	U
100-51-6	Benzyl alcohol	660	U
111-91-1	Bis(2-chloroethoxy)methane	100	U
111-44-4	Bis(2-chloroethyl) ether	160	U
108-60-1	Bis(2-chloroisopropyl) ether	160	U
117-81-7	Bis(2-ethylhexyl) phthalate	160	U
85-68-7	Butyl benzyl phthalate	160	U
86-74-8	Carbazole	160	U
218-01-9	Chrysene	160	U
53-70-3	Dibenz(a,h)anthracene	160	U
132-64-9	Dibenzofuran	160	U
84-66-2	Diethyl phthalate	160	U
131-11-3	Dimethyl phthalate	160	U
84-74-2	Di-n-butyl phthalate	160	U
117-84-0	Di-n-octyl phthalate	160	U
206-44-0	Fluoranthene	160	U
86-73-7	Fluorene	160	U
118-74-1	Hexachlorobenzene	160	U
87-68-3	Hexachlorobutadiene	50	U
77-47-4	Hexachlorocyclopentadiene	160	U
67-72-1	Hexachloroethane	160	U
193-39-5	Indeno(1,2,3-cd)pyrene	160	U
78-59-1	Isophorone	160	U
91-20-3	Naphthalene	160	U
98-95-3	Nitrobenzene	160	U
55-18-5	N-Nitrosodiethylamine	160	U
62-75-9	N-Nitrosodimethylamine	160	U
86-30-6	N-Nitrosodiphenylamine	160	U
621-64-7	N-nitrosodipropylamine	160	U
87-86-5	Pentachlorophenol	160	U
85-01-8	Phenanthrene	160	U
108-95-2	Phenol	160	U
129-00-0	Pyrene	160	U

Form 1

CLIENT SAMPLE NO.

MB-23195

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: MB-23195

Sample wt/vol: 0.03008 (g/mL) Kg Lab File ID: 09231104.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 9/23/2011

GC Column: RTX-5Sil MS ID: 0.18 (mm) Dilution Factor: 1.00

Extract Volume: 1000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
110-86-1	Pyridine	160	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23195 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	659.6339050	0	610	92	45-110
1,4-Dichlorobenzene	659.6339050	0	590	89	35-105
2,4,5-Trichlorophenol	659.6339050	0	650	99	50-110
2,4,6-Trichlorophenol	659.6339050	0	650	99	45-110
2,4-Dichlorophenol	659.6339050	0	630	96	45-110
2,4-Dimethylphenol	659.6339050	0	620	93	30-105
2,4-Dinitrophenol	659.6339050	0	530	81	15-130
~~2,4-Dinitrotoluene~~	659.6339050	0	800	~~122*~~	50-115
2,6-Dichlorophenol	659.6339050	0	610	93	50-130
2,6-Dinitrotoluene	659.6339050	0	720	110	50-110
2-Chloronaphthalene	659.6339050	0	540	82	45-105
2-Chlorophenol	659.6339050	0	580	88	45-105
2-Methylnaphthalene	659.6339050	0	620	94	45-105
2-Methylphenol	659.6339050	0	590	89	40-105
2-Nitroaniline	659.6339050	0	700	105	45-120
2-Nitrophenol	659.6339050	0	640	98	40-110
3,3'-Dichlorobenzidine	659.6339050	0	500	75	50-130
~~3-Nitroaniline~~	659.6339050	0	750	~~113*~~	25-110
4,6-Dinitro-2-methylphenol	659.6339050	0	620	94	30-135
4-Bromophenyl phenyl ether	659.6339050	0	690	105	50-130
4-Chloro-3-methylphenol	659.6339050	0	670	101	45-115
4-Chloroaniline	659.6339050	0	640	96	50-130
4-Chlorophenyl phenyl ether	659.6339050	0	670	101	45-110
4-Methylphenol	659.6339050	0	650	99	40-105
4-Nitroaniline	659.6339050	0	690	105	35-115
4-Nitrophenol	659.6339050	0	610	93	15-140
Acenaphthene	659.6339050	0	630	96	45-110
Acenaphthylene	659.6339050	0	630	96	45-105
Aniline	659.6339050	0	660	99	50-130
Anthracene	659.6339050	0	650	98	55-105

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23195 Level: (low/med) LOW

Benz(a)anthracene	659.6339050	0	690	105	50-110
Benzo(a)pyrene	659.6339050	0	690	104	50-110
Benzo(b)fluoranthene	659.6339050	0	680	103	45-115
Benzo(g,h,i)perylene	659.6339050	0	700	106	40-125
Benzo(k)fluoranthene	659.6339050	0	710	108	45-125
Benzyl alcohol	659.6339050	0	640	97	20-125
Bis(2-chloroethoxy)methane	659.6339050	0	650	98	45-110
Bis(2-chloroethyl) ether	659.6339050	0	630	95	40-105
Bis(2-chloroisopropyl) ether	659.6339050	0	600	91	20-115
Bis(2-ethylhexyl) phthalate	659.6339050	0	760	115	45-125
Butyl benzyl phthalate	659.6339050	0	740	113	50-125
Carbazole	659.6339050	0	650	99	45-115
Chrysene	659.6339050	0	700	107	55-110
Dibenz(a,h)anthracene	659.6339050	0	710	107	40-125
Dibenzofuran	659.6339050	0	650	98	50-105
Diethyl phthalate	659.6339050	0	680	103	50-115
Dimethyl phthalate	659.6339050	0	670	102	50-110
Di-n-butyl phthalate	659.6339050	0	680	104	55-110
Di-n-octyl phthalate	659.6339050	0	760	115	40-130
Fluoranthene	659.6339050	0	690	104	55-115
Fluorene	659.6339050	0	670	101	50-110
Hexachlorobenzene	659.6339050	0	660	100	45-120
Hexachlorobutadiene	659.6339050	0	600	91	40-115
Hexachlorocyclopentadiene	659.6339050	0	620	94	40-130
Hexachloroethane	659.6339050	0	590	89	35-110
Indeno(1,2,3-cd)pyrene	659.6339050	0	710	107	40-120
Isophorone	659.6339050	0	570	86	45-110
Naphthalene	659.6339050	0	600	91	40-105
Nitrobenzene	659.6339050	0	640	97	40-115
N-Nitrosodiethylamine	659.6339050	0	660	100	40-130
N-Nitrosodimethylamine	659.6339050	0	650	98	20-115
N-Nitrosodiphenylamine	659.6339050	0	600	91	50-115
N-nitrosodipropylamine	659.6339050	0	710	107	50-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID LCS-23195 Level: (low/med) LOW

Pentachlorophenol	659.6339050	0	650	98	25-120
Phenanthrene	659.6339050	0	660	99	50-110
Phenol	659.6339050	0	640	97	40-100
Pyrene	659.6339050	0	710	107	45-125
Pyridine	659.6339050	0	200	~~30~~	40-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	770	0	590	76	45-110
1,4-Dichlorobenzene	770	0	610	79	35-105
2,4,5-Trichlorophenol	770	0	660	86	50-110
2,4,6-Trichlorophenol	770	0	660	86	45-110
2,4-Dichlorophenol	770	0	610	79	45-110
2,4-Dimethylphenol	770	0	630	81	30-105
2,4-Dinitrophenol	770	0	370	48	15-130
2,4-Dinitrotoluene	770	0	760	99	50-115
2,6-Dinitrotoluene	770	0	670	87	50-110
2-Chloronaphthalene	770	0	550	71	45-105
2-Chlorophenol	770	0	630	82	45-105
2-Methylnaphthalene	770	11	640	81	45-105
2-Methylphenol	770	0	680	88	40-105
2-Nitroaniline	770	0	740	96	45-120
2-Nitrophenol	770	0	610	78	40-110
3,3'-Dichlorobenzidine	770	0	340	43*	50-130
3-Nitroaniline	770	0	800	103	25-110
4,6-Dinitro-2-methylphenol	770	0	400	51	30-135
4-Bromophenyl phenyl ether	770	0	750	97	50-130
4-Chloro-3-methylphenol	770	0	700	90	45-115
4-Chloroaniline	770	0	500	65	50-130
4-Chlorophenyl phenyl ether	770	0	700	91	45-110
4-Methylphenol	770	0	720	93	40-105
4-Nitroaniline	770	0	610	79	35-115
4-Nitrophenol	770	0	810	104	15-140
Acenaphthene	770	58	690	81	45-110
Acenaphthylene	770	0	670	86	45-105
Aniline	770	0	410	54	50-130
Anthracene	770	91	770	88	55-105
Benz(a)anthracene	770	270	1100	102	50-110
Benzo(a)pyrene	770	240	940	90	50-110

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits

Spike Recovery: 17 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level:(low/med) LOW

Benzo(b)fluoranthene	770	340	1100	94	45-115
Benzo(g,h,i)perylene	770	95	660	74	40-125
Benzo(k)fluoranthene	770	110	900	102	45-125
Benzyl alcohol	770	0	690	89	20-125
Bis(2-chloroethoxy)methane	770	0	670	87	45-110
Bis(2-chloroethyl) ether	770	0	600	77	40-105
Bis(2-chloroisopropyl) ether	770	0	780	101	20-115
Bis(2-ethylhexyl) phthalate	770	86	900	106	45-125
Butyl benzyl phthalate	770	0	820	106	50-125
Carbazole	770	77	940	111	45-115
Chrysene	770	280	970	89	55-110
Dibenz(a,h)anthracene	770	35	690	84	40-125
Dibenzofuran	770	28	660	81	50-105
Diethyl phthalate	770	0	740	95	50-115
Dimethyl phthalate	770	0	720	93	50-110
Di-n-butyl phthalate	770	0	750	96	55-110
Di-n-octyl phthalate	770	0	960	124	40-130
Fluoranthene	770	580	1100	69	55-115
Fluorene	770	52	700	84	50-110
Hexachlorobenzene	770	0	700	90	45-120
Hexachlorobutadiene	770	0	630	81	40-115
Hexachlorocyclopentadiene	770	0	310	40*	40-130
Hexachloroethane	770	0	470	61	35-110
Indeno(1,2,3-cd)pyrene	770	87	730	82	40-120
Isophorone	770	0	590	77	45-110
Naphthalene	770	16	640	80	40-105
Nitrobenzene	770	0	610	79	40-115
N-Nitrosodiethylamine	770	0	590	76	40-130
N-Nitrosodimethylamine	770	0	650	84	20-115
~~N-Nitrosodiphenylamine~~	770	0	380	~~49*~~	50-115
N-nitrosodipropylamine	770	0	590	76	50-115
Pentachlorophenol	770	0	780	101	25-120
Phenanthrene	770	400	920	67	50-110
Phenol	770	0	650	84	40-100

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits

Spike Recovery: 17 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level: (low/med) LOW

Pyrene	770	480	1100	76	45-125
Pyridine	770	0	340	44	40-130

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2,4-Trichlorobenzene	770	550	72	6	25	45-110
1,4-Dichlorobenzene	770	560	73	8	25	35-105
2,4,5-Trichlorophenol	770	630	81	6	25	50-110
2,4,6-Trichlorophenol	770	630	82	5	25	45-110
2,4-Dichlorophenol	770	600	78	2	25	45-110
2,4-Dimethylphenol	770	630	81	0	25	30-105
~~2,4-Dinitrophenol~~	770	250	32	~~41~~	25	15-130
2,4-Dinitrotoluene	770	680	88	12	25	50-115
2,6-Dinitrotoluene	770	660	85	3	25	50-110
2-Chloronaphthalene	770	530	69	3	25	45-105
2-Chlorophenol	770	570	74	10	25	45-105
2-Methylnaphthalene	770	620	79	3	25	45-105
2-Methylphenol	770	610	79	11	25	40-105
2-Nitroaniline	770	690	89	7	25	45-120
2-Nitrophenol	770	520	67	16	25	40-110
~~3,3'-Dichlorobenzidine~~	770	~~0~~	~~0*~~	~~200*~~	25	50-130
3-Nitroaniline	770	830	107	4	25	25-110
~~4,6-Dinitro-2-methylphenol~~	770	220	~~28*~~	~~58~~	25	30-135
4-Bromophenyl phenyl ether	770	650	84	14	25	50-130
4-Chloro-3-methylphenol	770	640	83	9	25	45-115
4-Chloroaniline	770	540	70	7	25	50-130
4-Chlorophenyl phenyl ether	770	670	87	4	25	45-110
4-Methylphenol	770	660	85	9	25	40-105
4-Nitroaniline	770	680	88	11	25	35-115
4-Nitrophenol	770	920	118	12	25	15-140
Acenaphthene	770	750	90	9	25	45-110
Acenaphthylene	770	630	81	7	25	45-105

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits

Spike Recovery: 17 out of 134 outside limits

COMMENTS:

FORM III SW8270C

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level: (low/med) LOW

Aniline	770	350	45*	17	25	50-130
Anthracene	770	880	102	14	25	55-105
Benz(a)anthracene	770	1300	128*	17	25	50-110
Benzo(a)pyrene	770	1100	115*	19	25	50-110
Benzo(b)fluoranthene	770	1300	128*	23	25	45-115
Benzo(g,h,i)perylene	770	570	61	15	25	40-125
Benzo(k)fluoranthene	770	1000	120	14	25	45-125
Benzyl alcohol	770	590	76	17	25	20-125
Bis(2-chloroethoxy)methane	770	630	82	6	25	45-110
Bis(2-chloroethyl) ether	770	580	75	3	25	40-105
Bis(2-chloroisopropyl) ether	770	690	89	12	25	20-115
Bis(2-ethylhexyl) phthalate	770	880	103	3	25	45-125
Butyl benzyl phthalate	770	770	100	6	25	50-125
Carbazole	770	1000	120*	7	25	45-115
Chrysene	770	1200	113*	18	25	55-110
Dibenz(a,h)anthracene	770	550	67	22	25	40-125
Dibenzofuran	770	690	86	5	25	50-105
Diethyl phthalate	770	680	88	8	25	50-115
Dimethyl phthalate	770	700	90	3	25	50-110
Di-n-butyl phthalate	770	730	94	3	25	55-110
Di-n-octyl phthalate	770	890	115	8	25	40-130
Fluoranthene	770	1600	137*	38*	25	55-115
Fluorene	770	750	90	7	25	50-110
Hexachlorobenzene	770	630	81	11	25	45-120
Hexachlorobutadiene	770	570	74	9	25	40-115
Hexachlorocyclopentadiene	770	180	23*	54*	25	40-130
Hexachloroethane	770	370	48	25	25	35-110
Indeno(1,2,3-cd)pyrene	770	660	73	10	25	40-120
Isophorone	770	570	73	5	25	45-110
Naphthalene	770	590	75	7	25	40-105
Nitrobenzene	770	550	71	12	25	40-115
N-Nitrosodiethylamine	770	540	70	8	25	40-130
N-Nitrosodimethylamine	770	560	72	16	25	20-115
N-Nitrosodiphenylamine	770	360	46*	6	25	50-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits

Spike Recovery: 17 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level:(low/med) LOW

N-nitrosodipropylamine	770	490	63	18	25	50-115
Pentachlorophenol	770	710	92	10	25	25-120
Phenanthrene	770	1500	140*	47*	25	50-110
Phenol	770	590	77	9	25	40-100
Pyrene	770	1500	131*	33*	25	45-125
~~Pyridine~~	770	160	~~21*~~	~~72~~	25	40-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 67 outside limits

Spike Recovery: 17 out of 134 outside limits

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108425

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (2FP) #	SMC2 (FBP) #	SMC3 (NBZ) #	SMC4 (PHL) #	SMC5 (TBP) #	SMC6 (TPH) #			TOT OUT
01	MB-23195	83	91	94	85	91	89			0
02	LCS-23195	84	91	97	90	109	102			0
03	MS	89	104	97	87	108	116			0
04	MSD	90	111 *	101 *	92	122	134 *			3
05	IOA-SS-EU17-0002		84	87			99			0
06	IOA-SS-EU31-0002		91	83			110			0
07	IOA-SS-EU40-0002		75	70			99			0
08	IOA-SS-DUP02-08101		93	87			115			0
09	IOA-SS-EU29-0002		84	86			109			0
10	IOA-SS-EU41-0002		88	91			101			0
11	MB-23237	82	91	96	90	88	101			0
12	LCS-23237	84	88	90	91	97	94			0
13	IOA-SS-EU13-0002		82	84			87			0
14	IOA-SS-EU07-0002		87	86			93			0
15	IOA-SS-EU09-0002MS	80	77	79	83	101	94			0
16	IOA-SS-EU03-0002		88	82			93			0
17	IOA-SS-EU30-0002		87	85			110			0
18	IOA-SS-EU16-0002		89	84			95			0
19	IOA-SS-EU02-0002		85	83			97			0
20	IOA-SS-DUP01-08091		78	83			92			0
21	IOA-SS-EU09-0002		74	76			87			0
22	IOA-SS-EU04-0002		81	72			88			0
23	IOA-SS-EU09-0002MS	72	74	71	73	97	89			0
24	IOA-SS-EU06-0002		83	87			94			0

			QC Limit
SMC 1	(2FP)	= 2-Fluorophenol	35-105
SMC 2	(FBP)	= 2-Fluorobiphenyl	45-105
SMC 3	(NBZ)	= Nitrobenzene-d5	35-100
SMC 4	(PHL)	= Phenol-d5	40-100
SMC 5	(TBP)	= 2,4,6-Tribromophenol	35-125
SMC 6	(TPH)	= Terphenyl-d14	30-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108425

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (2FP) #	SMC2 (FBP) #	SMC3 (NBZ) #	SMC4 (PHL) #	SMC5 (TBP) #	SMC6 (TPH) #			TOT OUT
25	IOA-SS-EU01-0002		85	83			92			0

			QC Limit
SMC 1	(2FP)	= 2-Fluorophenol	35-105
SMC 2	(FBP)	= 2-Fluorobiphenyl	45-105
SMC 3	(NBZ)	= Nitrobenzene-d5	35-100
SMC 4	(PHL)	= Phenol-d5	40-100
SMC 5	(TBP)	= 2,4,6-Tribromophenol	35-125
SMC 6	(TPH)	= Terphenyl-d14	30-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\093011\09301101.D
Tune Time : 30 Sep 2011 11:38 am

Daily Calibration File : C:\HPCHEM\1\DATA\093011\09301108.D

					148385	418092	205902
					295279	253831	239508
File	Sample	Surrogate Recovery %			Internal Standard Responses		
09301111.D	ICV2	192*	195*	100* 91*	161158	455136	222587
		202*	92*		314782	268409	252001
09301113.D	MB-23237	82*	90*	96* 91*	162089	447266	222622
		88*	101*		313453	265715	240469
09301114.D	LCS-2323	84*	91*	90* 88*	162527	468048	229990
		97*	94*		324994	275033	261341
09301115.D	1108425-	75*	79*	84* 82*	169580	445403	213652
		91*	87*		324794	291129	260552
09301116.D	1108425-	9*	17*	17* 17*	162972	433517	210993
		15*	19*		322709	285226	242743
09301117.D	1108425-	80*	83*	79* 77*	151171	430930	215522
		101*	94*		302710	254095	215055
09301118.D	1108425-	15*	16*	16* 18*	169176	457539	231518
		14*	19*		342823	279630	224452
09301119.D	1108425-	11*	19*	17* 17*	156948	427363	213229
		16*	22*		309285	276879	222612
09301120.D	1108425-	8*	17*	17* 18*	155858	413800	208324
		13*	19*		314153	285009	220401
09301121.D	1108425-	9*	17*	17* 17*	156960	418916	213540
		14*	19*		323080	283565	211952
09301122.D	1108425-	78*	79*	83* 78*	171314	461541	232471
		98*	92*		348895	303706	231747
09301123.D	1108425-	74*	77*	76* 74*	158894	439263	218270
		88*	87*		334427	274106	190504
09301124.D	1108425-	9*	15*	14* 16*	162314	433308	211698
		15*	18*		323324	275089	201273
09301125.D	1108425-	72*	73*	71* 74*	155210	427962	225045
		97*	89*		325183	275315	191379
09301126.D	1108425-	80*	86*	87* 83*	163710	454675	234419
		101*	94*		349731	284702	208932
09301127.D	RLVS1 S6	66*	95*	94* 89*	152782	427362	216145
		102*	95*		324186	266785	192150

t - fails 12hr time check * - fails criteria

Created: Tue Nov 15 12:16:52 2011 SVOC 6

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\2\DATA\092311\09231101.D
Tune Time : 23 Sep 2011 10:39 am

Daily Calibration File : C:\HPCHEM\2\DATA\092311\09231102.D

						554621	1773620	1016410
						1623840	1499470	1483650
File	Sample	Surrogate Recovery %				Internal Standard Responses		
09231102.D	CCV1 S5	103*	99*	100*	91*	554621	1773624	1016405
		111*	94*			1623837	1499469	1483646
09231103.D	RLVS1 S5	102*	95*	103*	94*	569799	1801809	1033407
		117*	92*			1593770	1617024	1546276
09231104.D	MB-23195	83*	85*	94*	91*	585573	1872159	1048070
		91*	89*			1607699	1740257	1629032
09231105.D	LCS-2319	84*	90*	97*	91*	580223	1835749	1029183
		109*	102*			1634474	1553466	1532550
09231106.D	1108425-	18*	17*	19*	21*	562339	1759368	982110
		22*	23*			1509510	1417480	1201929
09231107.D	1108425-	18*	18*	20*	22*	567780	1778520	991857
		24*	27*			1520867	1381431	1138614
09231108.D	1108425-	78*	77*	87*	84*	553812	1701258	959618
		103*	99*			1428894	1277621	1010175
09231109.D	1108425-	16*	15*	17*	18*	550344	1711078	923084
		17*	22*			1478408	1314160	1012594
09231110.D	1108425-	13*	12*	14*	15*	536177	1668070	925860
		15*	20*			1440081	1181856	988234
09231111.D	1108425-	17*	15*	17*	19*	557486	1741209	965523
		18*	23*			1480676	1363422	1067559
09231112.D	1108425-	79*	77*	86*	84*	573405	1791351	995771
		102*	109*			1547864	1097718	857116
09231113.D	1108425-	87*	84*	91*	88*	543517	1696388	957003
		109*	101*			1443887	1311745	948514
09231114.D	1108A20-	9*	8*	10*	11*	546668	1716201	966275
		14*	16*			1460848	1274467	908413
09231115.D	1108A20-	7*	5*	8*	8*	492148	1563400	871520
		8*	10*			1342328	1147716	810434
09231116.D	1108A20-	7*	5*	8*	9*	553078	1742389	970208
		9*	12*			1446739	1175049	809815
09231117.D	1108A20-	1*	0*	3*	3*	555501	1747333	982484
		3*	4*			1469798	1232225	852151
09231118.D	1108A20-	10*	9*	12*	13*	562917	1729069	976346
		16*	19*			1447812	1182396	793958
09231119.D	1108A20-	11*	9*	14*	15*	601551	1877112	1046020
		15*	20*			1531563	1216304	804163
09231120.D	1108A20-	8*	6*	10*	12*	575602	1816921	1023922
		12*	16*			1538449	1205198	783293

GC/MS QA-QC Check Report

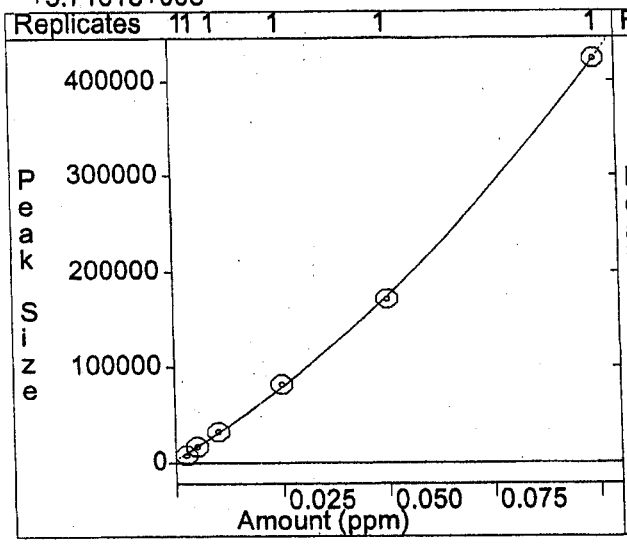
Tune File : C:\HPCHEM\2\DATA\100411\10041101.D
Tune Time : 4 Oct 2011 11:16 am

Daily Calibration File : C:\HPCHEM\2\DATA\092811\09281110.D

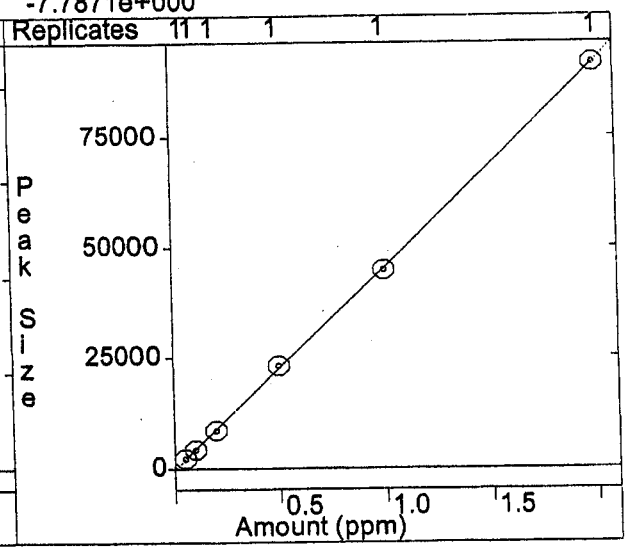
					580732	1909440	1084640
					1785200	1585250	1706940
File	Sample	Surrogate Recovery %			Internal Standard Responses		
10041102.D	CCV1 S5	202* 205*	101*	95*	583943	1902393	1100728
		205* 98*			1806294	1765541	1775047
10041103.D	RLVS S5	105* 99*	102*	97*	557213	1805453	1044249
		114* 93*			1694956	1820205	1762451
10041104.D	MB-23629	74* 79*	83*	84*	607653	1970267	1141734
		86* 87*			1812103	1990733	1862068
10041105.D	LCS-2362	87* 91*	92*	88*	586747	1898986	1109503
		102* 94*			1796195	1782939	1753514
10041106.D	1108623-	1* 1*	1*	2*	605909	1933017	1098237
		1* 2*			1760200	1839896	1677243
10041107.D	1108447-	10* 10*	10*	11*	587705	1883848	1100606
		11* 13*			1752018	1843490	1661779
10041108.D	1108447-	0 0	0	0	0*	0*	0*
		0 20682*			0*	1021*	3312*
10041109.D	1109174-	38* 38*	39*	41*	580454	1866119	1026429
		51* 53*			1671419	1596539	1461229
10041110.D	1109254-	8* 5*	7*	9*	578623	1879439	1087496
		19* 21*			1719969	1758696	1633555
10041111.D	1109365-	31* 31*	38*	33*	521448	1703249	1061801
		59* 48*			1561306	1671493	1496975
10041112.D	1108425-	80* 80*	83*	85*	558105	1814480	1012331
		93* 92*			1539621	1497730	1295835
10041113.D	1109264-	8* 5*	17*	16*	537858	1738818	1019844
		16* 19*			1593869	1677855	1473670
10041114.D	1109264-	0 2*	8*	8*	535780	1758138	1010303
		6* 9*			1621106	1623447	1403806
10041115.D	1109264-	0 4*	18*	18*	529053	1745654	989953
		17* 20*			1558274	1677363	1470674
10041116.D	1109411-	59* 61*	63*	65*	550871	1791107	1004158
		68* 77*			1529133	1606913	1392807
10041117.D	1109406-	71* 72*	76*	82*	563927	1787447	941772
		74* 81*			1354937	1549052	1292826
10041118.D	1109406-	74* 75*	77*	80*	545867	1766732	990284
		81* 87*			1527893	1535304	1287880
10041119.D	1108447-	73* 73*	74*	77*	530528	1699255	981835
		83* 90*			1516085	1371460	938952
10041120.D	1108447-	97* 96*	97*	98*	488810	1606589	924675
		108* 114*			1410425	1216441	768814*

Print Date: 09 Sep 2011 12:25:22
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

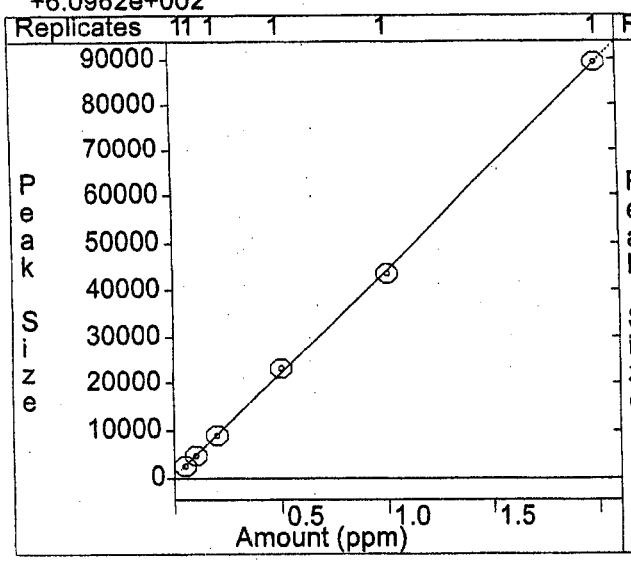
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 10.61%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999834
$y = +1.5694e+007x^2 +2.6242e+006x +3.7181e+003$



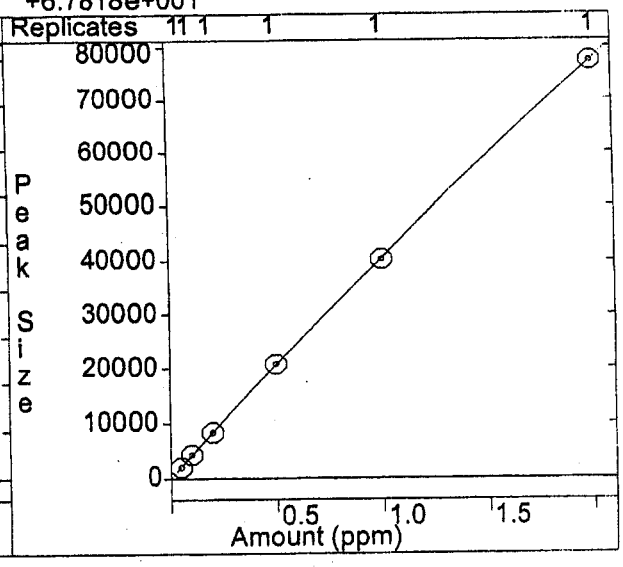
A1016-1
External Standard Analysis
Resp. Fact. RSD: 2.932%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999906
$y = +4.4676e+002x^2 +4.4870e+004x -7.7871e+000$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.320%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999755
$y = +7.2201e+002x^2 +4.2861e+004x +6.0962e+002$

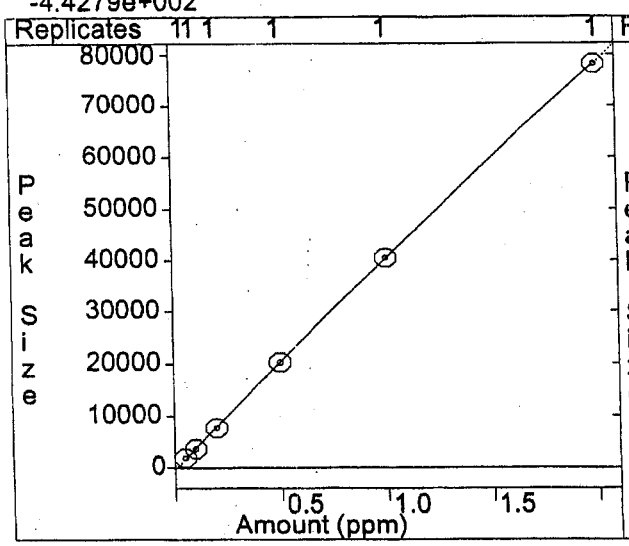


A1016-3
External Standard Analysis
Resp. Fact. RSD: 3.792%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999989
$y = -1.7049e+003x^2 +4.2059e+004x +6.7818e+001$

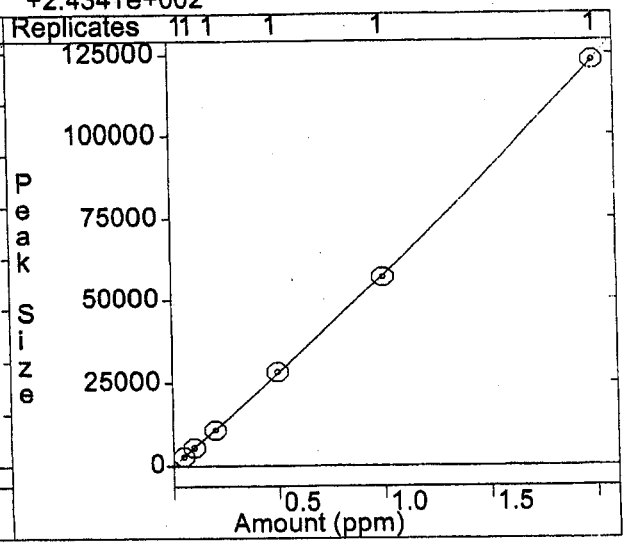


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

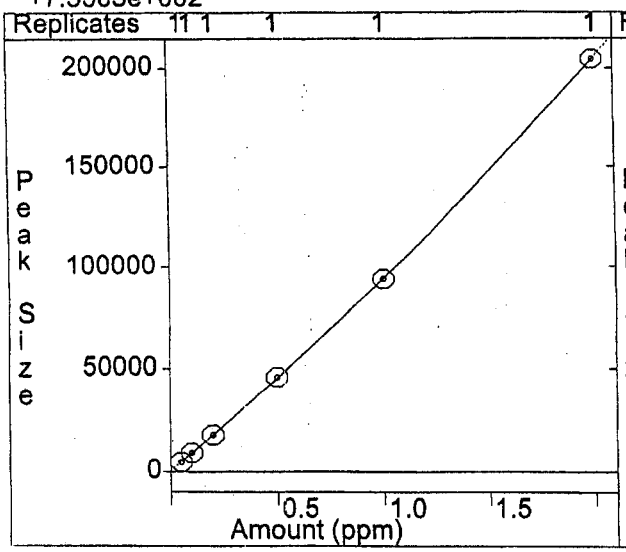
A1016-4
External Standard Analysis
Resp. Fact. RSD: 3.429%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999967
$y = -1.4912e+003x^2 + 4.2332e+004x - 4.4279e+002$



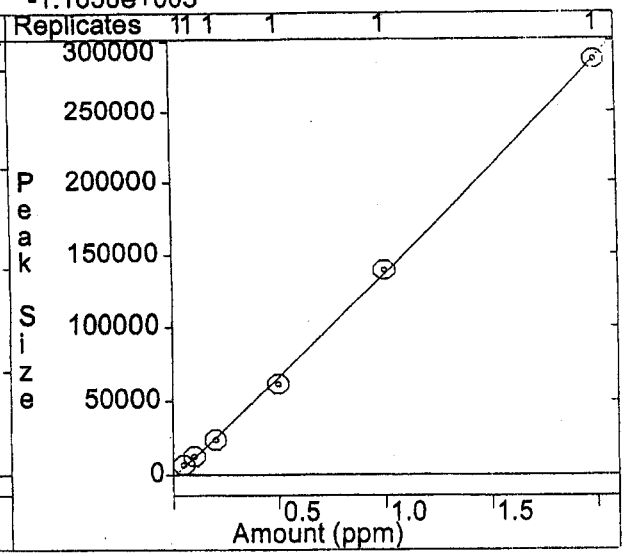
A1016-5
External Standard Analysis
Resp. Fact. RSD: 4.280%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999960
$y = +4.1703e+003x^2 + 5.3006e+004x + 2.4341e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 4.373%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999985
$y = +8.3062e+003x^2 + 8.5273e+004x + 7.3563e+002$

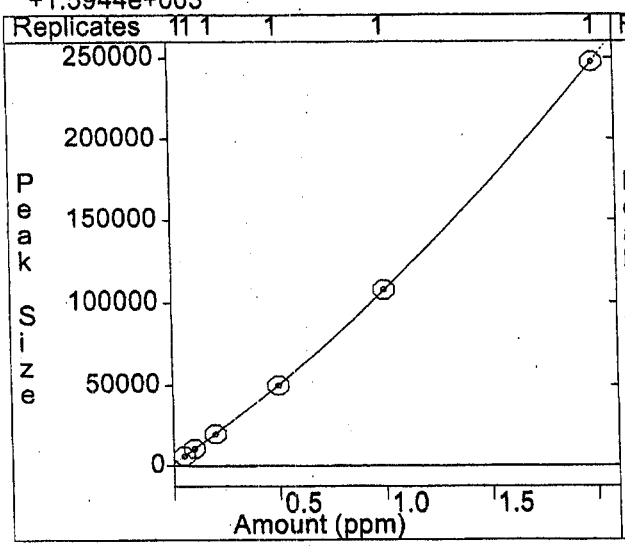


A1260-2
External Standard Analysis
Resp. Fact. RSD: 7.178%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999484
$y = +7.2046e+003x^2 + 1.2994e+005x - 1.1656e+003$

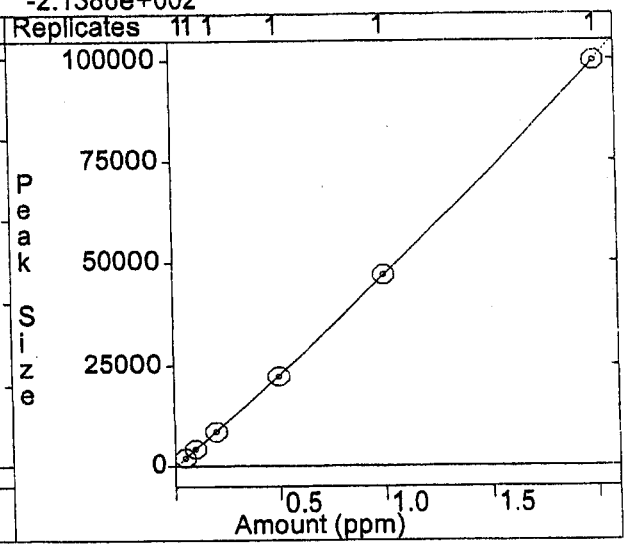


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

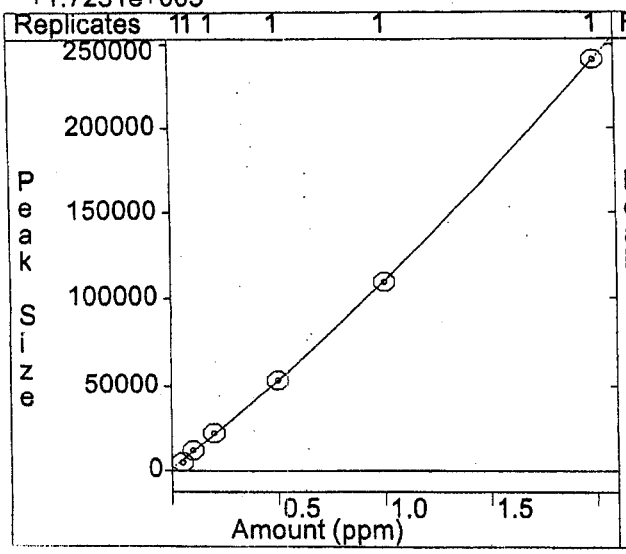
A1260-3
External Standard Analysis
Resp. Fact. RSD: 9.766%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999995
$y = +1.7085e+004x^2 +8.8762e+004x +1.5944e+003$



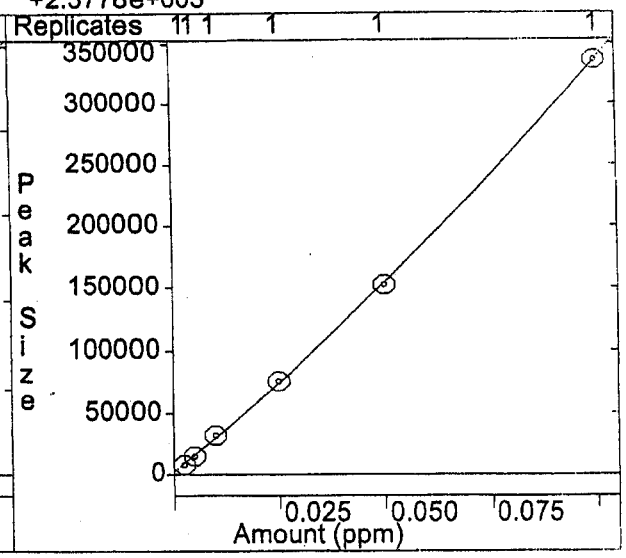
A1260-4
External Standard Analysis
Resp. Fact. RSD: 7.043%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999992
$y = +2.9664e+003x^2 +4.4033e+004x -2.1386e+002$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 6.879%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999901
$y = +1.0948e+004x^2 +9.7679e+004x +1.7231e+003$



DCB-surr
External Standard Analysis
Resp. Fact. RSD: 4.335%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999820
$y = +6.1485e+006x^2 +2.7199e+006x +2.5778e+003$



Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\icv pcb 1ppm .run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : icv pcb 1ppm

Injection Date: 8/24/11 4:04 AM Calculation Date: 9/9/11 12:40 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0521	4.3	4.775	-0.010	183216	0	
2	A1016-1	1.0000	1.0361	3.6	5.631	-0.009	46963	1	
3	A1016-2	1.0000	1.0260	2.6	6.731	-0.010	45345	1	
4	A1016-3	1.0000	0.9449	5.5	7.692	-0.012	38287	1	
5	A1016-4	1.0000	0.9232	7.7	7.839	-0.009	37368	1	
6	A1016-5	1.0000	1.0075	0.8	8.154	-0.012	57881	1	
7	A1260-1	1.0000	0.9881	1.2	10.057	-0.011	93101	2	
8	A1260-2	1.0000	1.0837	8.4	11.546	-0.014	148113	2	
9	A1260-3	1.0000	1.0497	5.0	12.073	-0.012	113600	2	
10	A1260-4	1.0000	1.0463	4.6	12.269	-0.011	49103	2	
11	A1260-5	1.0000	1.0215	2.1	14.510	-0.017	112925	2	
12	DCB-surr	0.0500	0.0513	2.6	16.345	-0.024	158295	0	
	Group 0		0.1034			-0.034	341511		
	Group 1		4.9377			-0.052	225844		
	Group 2		5.1893			-0.065	516842		
	Totals:		10.2304			-0.151	1084197		

Total Unidentified Counts : 5163515 counts

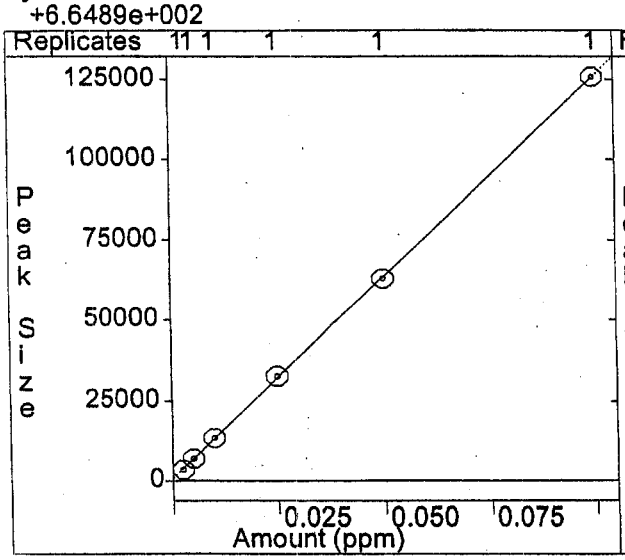
Detected Peaks: 49 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

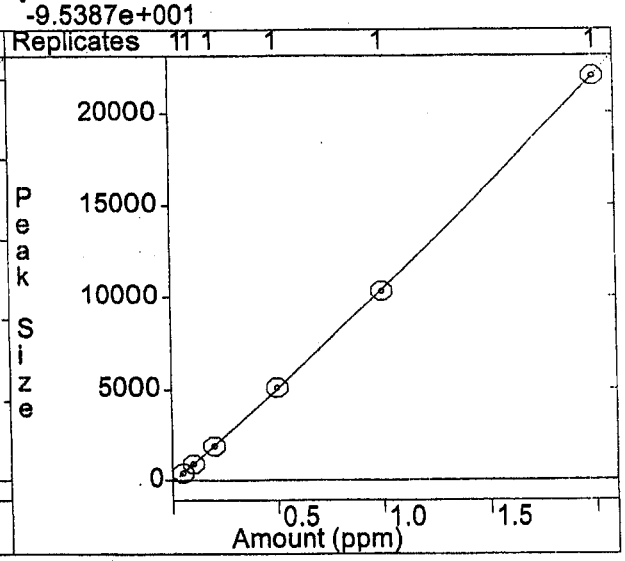
Baseline Offset: 67610 microVolts

Print Date: 09 Sep 2011 12:25:41
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

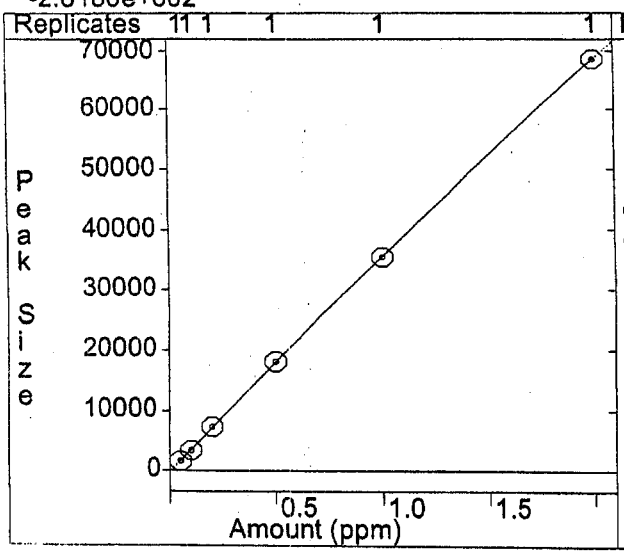
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 4.380%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999939
$y = -9.0289e+004x^2 + 1.2601e+006x + 6.6489e+002$



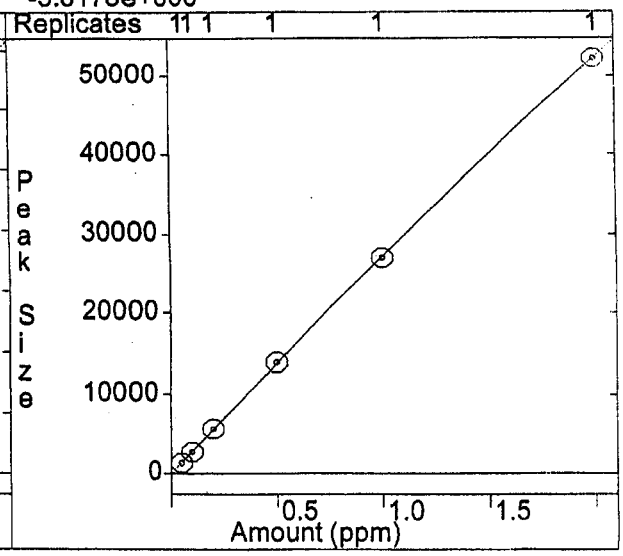
A1016-1
External Standard Analysis
Resp. Fact. RSD: 12.02%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999959
$y = +5.8532e+002x^2 + 9.8924e+003x - 9.5387e+001$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 5.449%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999979
$y = -1.4422e+003x^2 + 3.7283e+004x - 2.0180e+002$

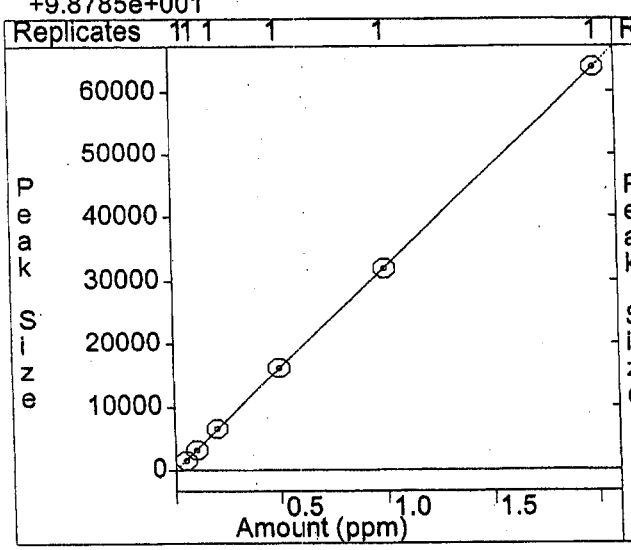


A1016-3
External Standard Analysis
Resp. Fact. RSD: 2.849%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999968
$y = -9.8918e+002x^2 + 2.8129e+004x - 5.8178e+000$

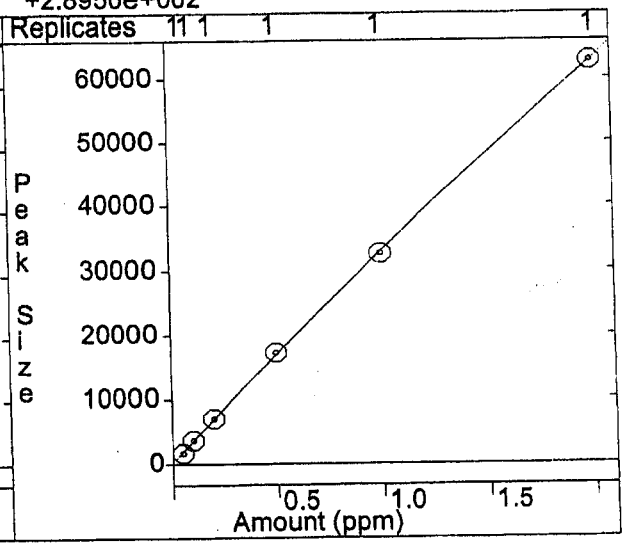


Print Date: 09 Sep 2011 12:25:42
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

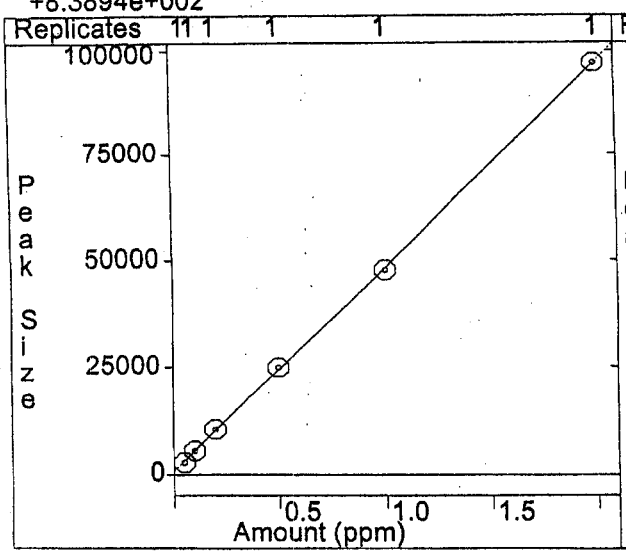
A1016-4
External Standard Analysis
Resp. Fact. RSD: 1.436%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999984
$y = -1.9929e+001x^2 + 3.1956e+004x + 9.8785e+001$



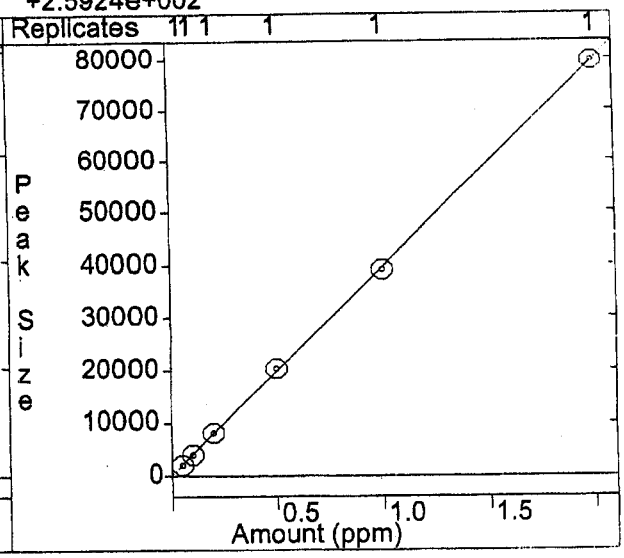
A1016-5
External Standard Analysis
Resp. Fact. RSD: 6.023%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999911
$y = -1.3799e+003x^2 + 3.3943e+004x + 2.8950e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 6.912%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999894
$y = +5.9703e+002x^2 + 4.6855e+004x + 8.3894e+002$

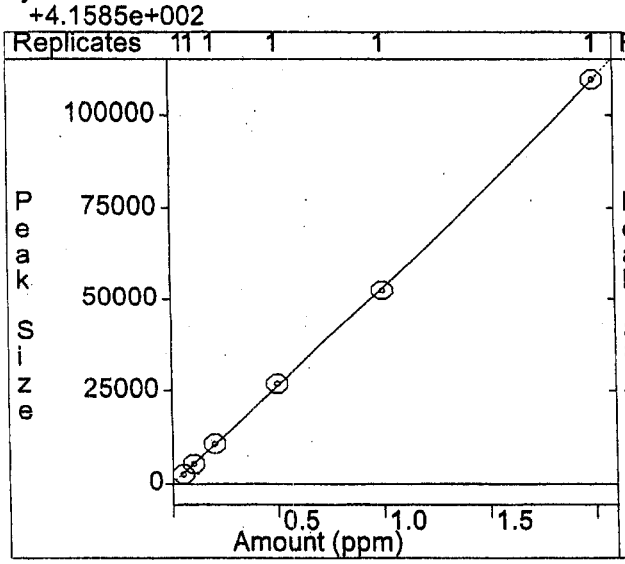


A1260-2
External Standard Analysis
Resp. Fact. RSD: 2.046%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999884
$y = +3.9972e+002x^2 + 3.8844e+004x + 2.5924e+002$

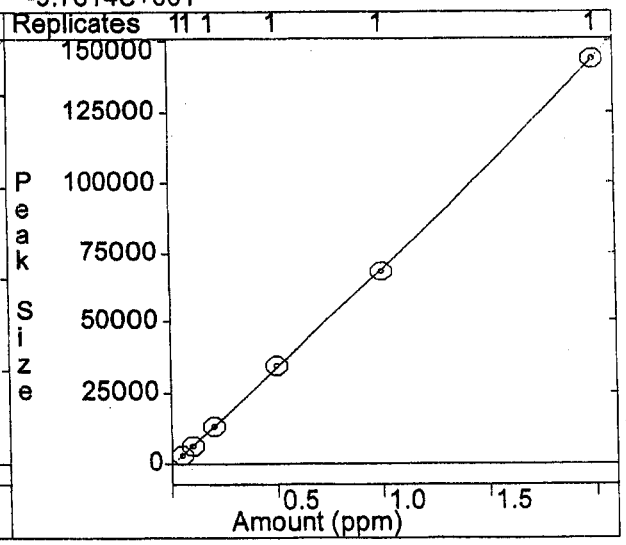


Print Date: 09 Sep 2011 12:25:43
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

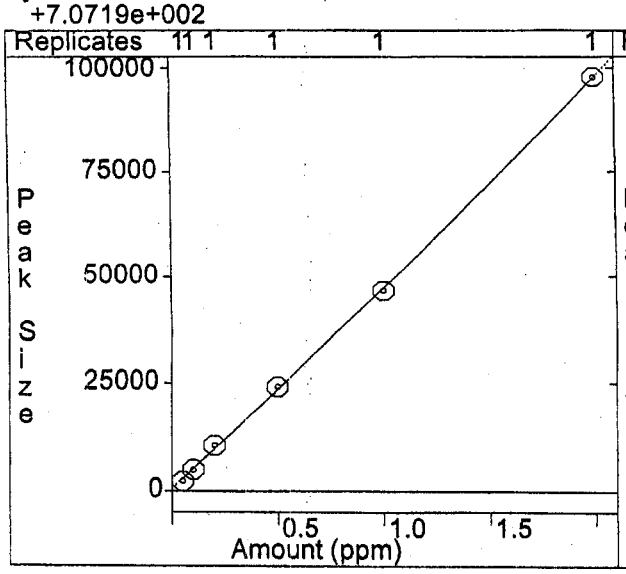
A1260-3
External Standard Analysis
Resp. Fact. RSD: 1.786%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999899
$y = +1.8672e+003x^2 +5.0771e+004x +4.1585e+002$



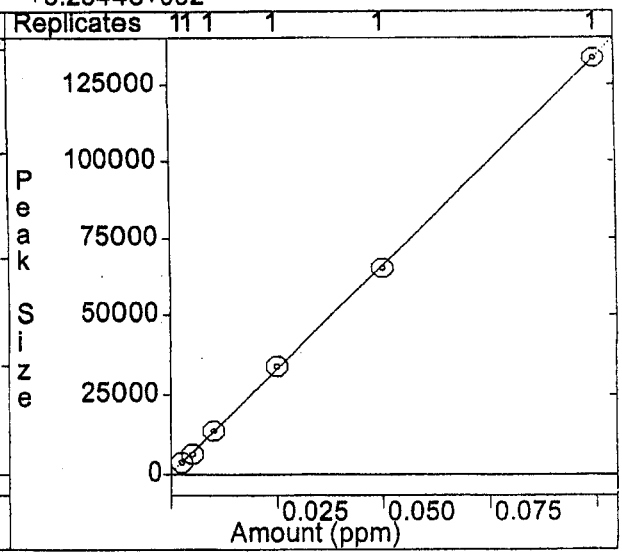
A1260-4
External Standard Analysis
Resp. Fact. RSD: 5.588%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999941
$y = +2.8845e+003x^2 +6.6088e+004x -9.7814e+001$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 4.957%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999694
$y = +1.9112e+003x^2 +4.4679e+004x +7.0719e+002$



DCB-surr
External Standard Analysis
Resp. Fact. RSD: 6.055%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999842
$y = +4.8039e+005x^2 +1.2829e+006x +6.2844e+002$



Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\icv pcb 1ppm .run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : icv pcb 1ppm

Injection Date: 8/24/11 4:04 AM Calculation Date: 9/9/11 11:36 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0505	1.0	3.834	-0.012	64054	0	
2	A1016-1	1.0000	0.9775	2.2	4.433	-0.034	10134	1	
3	A1016-2	1.0000	1.0030	0.3	4.926	-0.014	35742	1	
4	A1016-3	1.0000	1.0074	0.7	5.232	-0.015	27328	1	
5	A1016-4	1.0000	1.0712	7.1	5.908	-0.022	34307	1	
6	A1016-5	1.0000	1.0010	0.1	6.544	-0.019	32884	1	
7	A1260-1	1.0000	0.9967	0.3	8.537	-0.016	48130	2	
8	A1260-2	1.0000	1.0195	2.0	9.217	-0.017	40276	2	
9	A1260-3	1.0000	1.0078	0.8	9.733	-0.017	53479	2	
10	A1260-4	1.0000	1.0190	1.9	11.194	-0.017	70239	2	
11	A1260-5	1.0000	0.9704	3.0	12.113	-0.018	45865	2	
12	DCB-surr	0.0500	0.0509	1.7	12.983	-0.018	67110	0	
	Group 0		0.1014			-0.030	131164		
	Group 1		5.0601			-0.104	140395		
	Group 2		5.0134			-0.085	257989		
	Totals:		10.1749			-0.219	529548		

Total Unidentified Counts : 1159865 counts

Detected Peaks: 45 Rejected Peaks: 3 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 7710 microVolts

RTI Laboratories

Run ID: GC-ECD 1_110824A **Run No.:** 42422

Analytical Run Date: 8/24/2011 **InstrumentID:** GC-ECD 1

Analyst: Mike Budziak **Column:** GC-ECD 1-Primary

Calibration ID: **Column ID:** 0.53mm 0.42um cat11340ser

Column Length: 30m

SampID	TestCode	SampType	Batch ID	Analysis Date/Time	QA By	Q	Comments
icb pcb082411a1	SW_8082A	ICB	R42422	8/24/2011 4:29:29 AM	Charles O'Bryan		
crql pcb082411a1	SW_8082A	CRQL	R42422	8/24/2011 4:53:45 AM	Charles O'Bryan		
ccv pcb082411a1	SW_8082A	CCV	R42422	8/24/2011 5:17:56 AM	Charles O'Bryan		
lcs-23191	EPA_608_PCB	LCS	23191	8/24/2011 5:42:09 AM	Charles O'Bryan		
lcsd-23191	EPA_608_PCB	LCSD	23191	8/24/2011 6:06:20 AM	Charles O'Bryan		
mb-23191	EPA_608_PCB	MBLK	23191	8/24/2011 6:30:33 AM	Charles O'Bryan		
1108424-001a	EPA_608_PCB	SAMP	23191	8/24/2011 6:54:42 AM	Charles O'Bryan		
1108391-002e	EPA_608_PCB	SAMP	23191	8/24/2011 7:18:58 AM	Charles O'Bryan		
1108390-001c	EPA_608_PCB	SAMP	23191	8/24/2011 7:43:08 AM	Charles O'Bryan		
lcs-23263	SW_8082A	LCS	23263	8/24/2011 8:07:23 AM	Charles O'Bryan		
lcsd-23263	SW_8082A	LCSD	23263	8/24/2011 8:31:35 AM	Charles O'Bryan		
mb-23263	SW_8082A	MBLK	23263	8/24/2011 8:55:50 AM	Charles O'Bryan		
1108623-007b	SW_8082A	SAMP	23263	8/24/2011 9:19:55 AM	Charles O'Bryan		
1108623-008b	SW_8082A	SAMP	23263	8/24/2011 9:44:09 AM	Charles O'Bryan		
1108536-001c	EPA_608_PCB	SAMP	23263	8/24/2011 10:08:17 AM	Charles O'Bryan		
1108536-002c	EPA_608_PCB	SAMP	23263	8/24/2011 10:32:29 AM	Charles O'Bryan		
lcs-23296	SW_8082S	LCS	23296	8/24/2011 10:56:35 AM	Charles O'Bryan		
mb-23296	SW_8082S	MBLK	23296	8/24/2011 11:20:53 AM	Charles O'Bryan		
1108727-001a	SW_8082S	SAMP	23296	8/24/2011 11:44:58 AM	Charles O'Bryan		
1108679-001a	SW_8082S	SAMP	23296	8/24/2011 12:09:13 PM	Charles O'Bryan		
1108679-001ams	SW_8082S	MS	23296	8/24/2011 12:33:22 PM	Charles O'Bryan		
1108679-001amsd	SW_8082S	MSD	23296	8/24/2011 12:57:33 PM	Charles O'Bryan		
ccb pcb082411b1	SW_8082A	CCB	R42422	8/24/2011 1:21:58 PM	Charles O'Bryan		
crql pcb082411b1	SW_8082A	CRQL	R42422	8/24/2011 1:46:13 PM	Charles O'Bryan		
ccv pcb082411b1	SW_8082A	CCV	R42422	8/24/2011 2:10:21 PM	Charles O'Bryan		
lcs-23226	SW_8082S	LCS	23226	8/24/2011 3:37:14 PM	Robert Lynch		
mb-23226	SW_8082S	MBLK	23226	8/24/2011 4:01:32 PM	Charles O'Bryan		
1108425-001b	SW_8082S	SAMP	23226	8/24/2011 4:25:44 PM	Robert Lynch		
1108425-002b	SW_8082S	SAMP	23226	8/24/2011 4:49:59 PM	Robert Lynch		
1108425-003b	SW_8082S	SAMP	23226	8/24/2011 5:14:09 PM	Robert Lynch		
1108425-005b	SW_8082S	SAMP	23226	8/24/2011 6:09:13 PM	Robert Lynch		
1108425-006b	SW_8082S	SAMP	23226	8/24/2011 6:33:24 PM	Robert Lynch		
1108425-007b	SW_8082S	SAMP	23226	8/24/2011 6:57:35 PM	Robert Lynch		
1108425-008b	SW_8082S	SAMP	23226	8/24/2011 7:21:44 PM	Robert Lynch		
1108425-010b	SW_8082S	SAMP	23226	8/24/2011 7:46:01 PM	Robert Lynch		
1108425-007bms	SW_8082S	MS	23226	8/24/2011 8:10:13 PM	Robert Lynch		

Run ID: GC-ECD 1_110824A Run No.: 42422

1108425-007bmsd	SW_8082S	MSD	23226	8/24/2011 8:34:24 PM	Robert Lynch		
1108425-011b	SW_8082S	SAMP	23226	8/24/2011 8:58:38 PM	Robert Lynch		
1108425-012a	SW_8082S	SAMP	23226	8/24/2011 9:22:53 PM	Robert Lynch		
ccb pcb082411c1	SW_8082S	CCB	R42422	8/24/2011 9:47:11 PM	Robert Lynch		
crql pcb082411c1	SW_8082S	CRQL	R42422	8/24/2011 10:11:24 PM	Robert Lynch		
ccv pcb082411c1	SW_8082S	ccv	R42422	8/24/2011 10:35:35 PM	Robert Lynch		
1108425-013b	SW_8082S	SAMP	23226	8/24/2011 11:00:00 PM	Robert Lynch		
1108425-014b	SW_8082S	SAMP	23226	8/24/2011 11:24:12 PM	Robert Lynch		
1108425-015a	SW_8082S	SAMP	23226	8/24/2011 11:48:23 PM	Robert Lynch		
1108425-016b	SW_8082S	SAMP	23226	8/25/2011 12:12:35 AM	Robert Lynch		
1108425-017b	SW_8082S	SAMP	23226	8/25/2011 12:36:45 AM	Robert Lynch		
1108425-018b	SW_8082S	SAMP	23226	8/25/2011 1:00:59 AM	Robert Lynch		
1108425-019b	SW_8082S	SAMP	23226	8/25/2011 1:25:11 AM	Robert Lynch		
1108425-020b	SW_8082S	SAMP	23226	8/25/2011 1:49:21 AM	Robert Lynch		
1108447-001b	SW_8082S	SAMP	23226	8/25/2011 2:13:32 AM	Robert Lynch		
1108447-002b	SW_8082S	SAMP	23226	8/25/2011 2:37:47 AM	Robert Lynch		
ccb pcb082411d1	SW_8082S	CCB	R42422	8/25/2011 3:01:56 AM	Robert Lynch		
crql pcb082411d1	SW_8082S	CRQL	R42422	8/25/2011 3:26:06 AM	Robert Lynch		
ccv pcb082411d1	SW_8082S	ccv	R42422	8/25/2011 3:50:17 AM	Robert Lynch		
lcs-23201	SW_8082S	LCS	23201	8/25/2011 4:14:33 AM	Robert Lynch		
mb-23201	SW_8082S	MBLK	23201	8/25/2011 4:38:46 AM	Charles O'Bryan		
1108201-003a	SW_8082S	SAMP	23201	8/25/2011 5:51:24 AM	Robert Lynch		
1108201-008a	SW_8082S	SAMP	23201	8/25/2011 7:52:16 AM	Robert Lynch		
1108201-009a	SW_8082S	SAMP	23201	8/25/2011 8:16:30 AM	Robert Lynch		
1108201-010a	SW_8082S	SAMP	23201	8/25/2011 8:40:41 AM	Robert Lynch		
ccb pcb082411e1	SW_8082S	CCB	R42422	8/25/2011 9:53:26 AM	Robert Lynch		
crql pcb082411e1	SW_8082S	CRQL	R42422	8/25/2011 10:17:41 AM	Robert Lynch		
ccv pcb082411e1	SW_8082S	ccv	R42422	8/25/2011 10:41:50 AM	Robert Lynch		
1108201-012a	SW_8082S	SAMP	23201	8/25/2011 12:01:12 PM	Robert Lynch		
1108201-001a	SW_8082S	SAMP	23201	8/25/2011 2:29:52 PM	Robert Lynch		
1108201-002a	SW_8082S	SAMP	23201	8/25/2011 2:54:01 PM	Robert Lynch		
1108201-004a	SW_8082S	SAMP	23201	8/25/2011 3:18:13 PM	Robert Lynch		
1108201-005a	SW_8082S	SAMP	23201	8/25/2011 3:42:23 PM	Robert Lynch		
ccb pcb082411f1	SW_8082S	CCB	R42422	8/25/2011 5:28:12 PM	Robert Lynch		
crql pcb082411f1	SW_8082S	CRQL	R42422	8/25/2011 6:02:25 PM	Robert Lynch		
ccv pcb082411f1	SW_8082S	ccv	R42422	8/25/2011 6:26:47 PM	Robert Lynch		
1108201-011a	SW_8082S	SAMP	23201	8/25/2011 7:17:48 PM	Robert Lynch		
1108201-006a	SW_8082S	SAMP	23201	8/25/2011 7:51:58 PM	Robert Lynch		
1108201-007a	SW_8082S	SAMP	23201	8/25/2011 8:26:09 PM	Robert Lynch		
1108201-013a	SW_8082S	SAMP	23201	8/25/2011 9:00:20 PM	Robert Lynch		
1108201-014a	SW_8082S	SAMP	23201	8/25/2011 9:34:36 PM	Robert Lynch		
1108201-002ams	SW_8082S	MS	23201	8/25/2011 10:08:45 PM	Robert Lynch		

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411b1.run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : ccv pcb082411b1

Injection Date: 8/24/11 2:10 PM Calculation Date: 9/9/11 11:39 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0502	0.3	3.842	-0.003	63653	0	
2	A1016-1	1.0000	0.9454	5.5	4.443	-0.024	9780	1	
3	A1016-2	1.0000	1.0015	0.1	4.934	-0.006	35691	1	
4	A1016-3	1.0000	1.0068	0.7	5.241	-0.006	27311	1	
5	A1016-4	1.0000	1.0891	8.9	5.918	-0.012	34878	1	
6	A1016-5	1.0000	0.9979	0.2	6.554	-0.009	32788	1	
7	A1260-1	1.0000	0.9829	1.7	8.546	-0.007	47471	2	
8	A1260-2	1.0000	1.0012	0.1	9.226	-0.009	39550	2	
9	A1260-3	1.0000	0.9929	0.7	9.742	-0.008	52666	2	
10	A1260-4	1.0000	1.0063	0.6	11.202	-0.009	69329	2	
11	A1260-5	1.0000	0.9743	2.6	12.122	-0.009	46050	2	
12	DCB-surr	0.0500	0.0498	0.4	12.993	-0.008	65677	0	
	Group 0		0.1000			-0.011	129330		
	Group 1		5.0407			-0.057	140448		
	Group 2		4.9576			-0.042	255066		
	Totals:		10.0983			-0.110	524844		

Total Unidentified Counts : 1133265 counts

Detected Peaks: 39 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 7160 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 410 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411b1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411b1

Injection Date: 8/24/11 2:10 PM Calculation Date: 8/24/11 5:11 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0525	4.9	4.778	-0.007	184629	0	
2	A1016-1	1.0000	1.0593	5.9	5.639	-0.001	48025	1	
3	A1016-2	1.0000	1.1249	12.5	6.738	-0.003	49737	1	
4	A1016-3	1.0000	1.0084	0.8	7.700	-0.004	40748	1	
5	A1016-4	1.0000	1.0138	1.4	7.844	-0.004	40941	1	
6	A1016-5	1.0000	1.0373	3.7	8.162	-0.004	59714	1	
7	A1260-1	1.0000	1.0466	4.7	10.064	-0.004	99084	2	
8	A1260-2	1.0000	1.1006	10.1	11.554	-0.007	150574	2	
9	A1260-3	1.0000	1.0633	6.3	12.082	-0.003	115287	2	
10	A1260-4	1.0000	1.0655	6.5	12.276	-0.004	50069	2	
11	A1260-5	1.0000	1.0121	1.2	14.520	-0.007	111804	2	
12	DCB-surr	0.0500	0.0499	0.2	16.358	-0.011	153690	0	
	Group 0		0.1024			-0.018	338319		
	Group 1		5.2437			-0.016	239165		
	Group 2		5.2881			-0.025	526818		
	Totals:		10.6342			-0.059	1104302		

Total Unidentified Counts : 5292014 counts

Detected Peaks: 55 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 70550 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2230 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411c1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411c1

Injection Date: 8/24/11 10:35 PM Calculation Date: 11/14/11 3:45 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : A = A Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0497	0.5	3.836	-0.010	63123	0	
2	A1016-1	1.0000	0.9471	5.3	4.437	-0.030	9799	1	
3	A1016-2	1.0000	0.9950	0.5	4.927	-0.013	35466	1	
4	A1016-3	1.0000	1.0045	0.5	5.234	-0.013	27253	1	
5	A1016-4	1.0000	0.9628	3.7	5.910	-0.020	30849	1	
6	A1016-5	1.0000	0.9984	0.2	6.547	-0.016	32803	1	
7	A1260-1	1.0000	0.9826	1.7	8.538	-0.015	47458	2	
8	A1260-2	1.0000	0.9977	0.2	9.219	-0.016	39410	2	
9	A1260-3	1.0000	0.9866	1.3	9.735	-0.015	52326	2	
10	A1260-4	1.0000	0.9797	2.0	11.194	-0.017	67415	2	
11	A1260-5	1.0000	0.9859	1.4	12.113	-0.018	46614	2	
12	DCB-surr	0.0500	0.0512	2.4	12.981	-0.020	67568	0	
	Group 0		0.1009			-0.030	130691		
	Group 1		4.9078			-0.092	136170		
	Group 2		4.9325			-0.081	253223		
	Totals:		9.9412			-0.203	520084		

Total Unidentified Counts : 1139004 counts

Detected Peaks: 39 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 6840 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 440 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411c1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411c1

Injection Date: 8/24/11 10:35 PM Calculation Date: 8/28/11 12:10 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

* Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0539	7.8	4.776	-0.009	190776	0	
2	A1016-1	1.0000	0.8839	11.6	5.633	-0.007	40001	1	
3	A1016-2	1.0000	1.1224	12.2	6.732	-0.009	49627	1	
4	A1016-3	1.0000	0.9916	0.8	7.693	-0.011	40098	1	
5	A1016-4	1.0000	0.9603	4.0	7.838	-0.010	38834	1	
6	A1016-5	1.0000	1.0424	4.2	8.155	-0.012	60028	1	
7	A1260-1	1.0000	1.1078	10.8	10.056	-0.012	105396	2	
8	A1260-2	1.0000	1.0110	1.1	11.545	-0.015	137571	2	
9	A1260-3	1.0000	1.0722	7.2	12.073	-0.012	116412	2	
10	A1260-4	1.0000	1.0834	8.3	12.267	-0.013	50971	2	
11	A1260-5	1.0000	1.1011	10.1	14.507	-0.021	122556	2	
12	DCB-surr	0.0500	0.0538	7.6	16.339	-0.030	166665	0	
	Group 0		0.1077			-0.039	357441		
	Group 1		5.0006			-0.049	228588		
	Group 2		5.3755			-0.073	532906		
	Totals:		10.4838			-0.161	1118935		

Total Unidentified Counts : 5285052 counts

Detected Peaks: 46 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 73020 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2120 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411d1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411d1

Injection Date: 8/25/11 3:50 AM Calculation Date: 11/14/11 3:45 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0506	1.2	3.835	-0.011	64195	0	
2	A1016-1	1.0000	1.0468	4.7	4.432	-0.035	10902	1	
3	A1016-2	1.0000	1.0124	1.2	4.925	-0.015	36064	1	
4	A1016-3	1.0000	1.0281	2.8	5.232	-0.015	27869	1	
5	A1016-4	1.0000	1.0104	1.0	5.908	-0.022	32368	1	
6	A1016-5	1.0000	1.0084	0.8	6.543	-0.020	33113	1	
7	A1260-1	1.0000	0.9838	1.6	8.536	-0.017	47512	2	
8	A1260-2	1.0000	0.9702	3.0	9.216	-0.019	38320	2	
9	A1260-3	1.0000	0.9712	2.9	9.733	-0.017	51488	2	
10	A1260-4	1.0000	0.9608	3.9	11.192	-0.019	66065	2	
11	A1260-5	1.0000	0.9646	3.5	12.110	-0.021	45582	2	
12	DCB-surr	0.0500	0.0505	1.0	12.979	-0.022	66666	0	
	Group 0		0.1011			-0.033	130861		
	Group 1		5.1061			-0.107	140316		
	Group 2		4.8506			-0.093	248967		
	Totals:		10.0578			-0.233	520144		

otal Unidentified Counts : 1135211 counts

etected Peaks: 41 Rejected Peaks: 1 Identified Peaks: 12

ultiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

aseline Offset: 7350 microVolts

oise (used): 1000 microVolts - fixed value
oise (monitored before this run): 400 microVolts

ack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411d1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411d1

Injection Date: 8/25/11 3:50 AM Calculation Date: 8/28/11 12:10 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0555	11.0	4.775	-0.010	197760	0	
2	A1016-1	1.0000	0.9193	8.1	5.631	-0.009	41619	1	
3	A1016-2	1.0000	1.1010	10.1	6.731	-0.010	48677	1	
4	A1016-3	1.0000	1.0081	0.8	7.692	-0.012	40736	1	
5	A1016-4	1.0000	0.9743	2.6	7.837	-0.011	39385	1	
6	A1016-5	1.0000	1.0493	4.9	8.153	-0.013	60457	1	
7	A1260-1	1.0000	1.0866	8.7	10.056	-0.012	103201	2	
8	A1260-2	1.0000	0.9622	3.8	11.544	-0.016	130537	2	
9	A1260-3	1.0000	1.0325	3.3	12.071	-0.014	111461	2	
10	A1260-4	1.0000	1.0465	4.7	12.265	-0.015	49116	2	
11	A1260-5	1.0000	1.0931	9.3	14.505	-0.022	121580	2	
12	DCB-surr	0.0500	0.0546	9.3	16.340	-0.029	169578	0	
	Group 0		0.1101			-0.039	367338		
	Group 1		5.0520			-0.055	230874		
	Group 2		5.2209			-0.079	515895		
	Totals:		10.3830			-0.173	1114107		

otal Unidentified Counts : 5092625 counts

etected Peaks: 47 Rejected Peaks: 0 Identified Peaks: 12

ultiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

aseline Offset: 78760 microVolts

oise (used): 1000 microVolts - fixed value
oise (monitored before this run): 2230 microVolts

ack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

4C

EPA SAMPLE NO.

mb-23226

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Lab Sample ID: mb-23226 Lab File ID:

Matrix: (soil/water) S Extraction: (Type)

Sulfur Cleanup: (Y/N) N Date Extracted: 8/15/2011

Date Analyzed (1): 8/24/2011 Date Analyzed (2):

Time Analyzed (1): 16:01 Time Analyzed (2):

Instrument ID (1): GC-ECD 1 Instrument ID (2):

GC Column (1): CLPPest ID: 0.5 (mm) GC Column (2): ID: (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	lcs-23226	lcs-23226	8/24/2011	
2	OA-SS-EU01-000	1108425-001B	8/24/2011	
3	OA-SS-EU03-000	1108425-002B	8/24/2011	
4	A-SS-DUP01-080	1108425-003B	8/24/2011	
5	OA-SS-EU02-000	1108425-005B	8/24/2011	
6	OA-SS-EU04-000	1108425-006B	8/24/2011	
7	OA-SS-EU09-000	1108425-007B	8/24/2011	
8	OA-SS-EU06-000	1108425-008B	8/24/2011	
9	OA-SS-EU13-000	1108425-010B	8/24/2011	
10	A-SS-EU09-0002M	1108425-007B	8/24/2011	
11	-SS-EU09-0002M	1108425-007B	8/24/2011	
12	OA-SS-EU17-000	1108425-011B	8/24/2011	
13	OA-SS-EU10-000	1108425-012A	8/24/2011	
14	OA-SS-EU31-000	1108425-013B	8/24/2011	
15	OA-SS-EU40-000	1108425-014B	8/24/2011	
16	OA-SS-EU27-000	1108425-015A	8/24/2011	
17	A-SS-DUP02-081	1108425-016B	8/25/2011	
18	OA-SS-EU29-000	1108425-017B	8/25/2011	
19	OA-SS-EU16-000	1108425-018B	8/25/2011	
20	OA-SS-EU30-000	1108425-019B	8/25/2011	
21	OA-SS-EU41-000	1108425-020B	8/25/2011	
22	ZZZZZ	1108447-001b	8/25/2011	
23	ZZZZZ	1108447-002b	8/25/2011	

COMMENTS: _____

_____

Form 1

CLIENT SAMPLE NO.

mb-23226

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108425

Matrix: (soil/water) Solid Lab Sample ID: mb-23226

Sample wt/vol: 0.03005 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/24/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	33	U
11104-28-2	Aroclor 1221	33	U
11141-16-5	Aroclor 1232	33	U
53469-21-9	Aroclor 1242	33	U
12672-29-6	Aroclor 1248	33	U
11097-69-1	Aroclor 1254	33	U
11096-82-5	Aroclor 1260	33	U
37324-23-5	Aroclor 1262	33	U
1336-36-3	Total PCBs	33	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Sample ID lcs-23226 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
Aroclor 1016	166.3339986	0	180	106	40-140
Aroclor 1260	166.3339986	0	180	109	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III SW8082

3

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108425

Matrix Spike - Sample No.: IOA-SS-EU09-0002 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1016	190	0	180	91	40-140
Aroclor 1260	190	470	640	92	60-130

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	190	200	102	11	25	40-140
Aroclor 1260	190	690	116	7	25	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III SW8082

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108425

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (DCB) #	SMC2 (TCX) #							TOT OUT
01	lcs-23226	110	100							0
02	mb-23226	99	89							0
03	IOA-SS-EU01-0002	104	100							0
04	IOA-SS-EU03-0002	141 *	89							1
05	IOA-SS-DUP01-08091	116	108							0
06	IOA-SS-EU02-0002	73	76							0
07	IOA-SS-EU04-0002	103	90							0
08	IOA-SS-EU09-0002	87	97							0
09	IOA-SS-EU06-0002	78	74							0
10	IOA-SS-EU13-0002	116	102							0
11	IOA-SS-EU09-0002MS	94	103							0
12	IOA-SS-EU09-0002MS	90	106							0
13	IOA-SS-EU17-0002	84	73							0
14	IOA-SS-EU10-0002	98	73							0
15	IOA-SS-EU31-0002	73	94							0
16	IOA-SS-EU40-0002	114	93							0
17	IOA-SS-EU27-0002	71	91							0
18	IOA-SS-DUP02-08101	90	97							0
19	IOA-SS-EU29-0002	97	93							0
20	IOA-SS-EU16-0002	113	103							0
21	IOA-SS-EU30-0002	82	108							0
22	IOA-SS-EU41-0002	91	90							0

		QC Limit
SMC 1 (DCB)	=2,2´,3,3´,4,4´,5,5´,6,6´-Decachlorobiphenyl	60-125
SMC 2 (TCX)	=Tetrachloro-m-xylene	60-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

Confirmation Column - Results Summary

08-24-11-PCB-smp-rpd

Sample Name	Data File	Mode	Inj. #	Peak Names ------> TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	RPD
1108425-001b	2011\0824-pcb\1108425-001b.RPA	A	1	0.0497	0.0497	0.1164	0.0544	0.1193	0.1491	0.1757	0.1230	12.39%
1108425-002b	2011\0824-pcb\1108425-002b.RPA	A	1	0.0439	0.0655	0.0102	0.0201	0.0557	0.0912	0.0734	0.0501	0.67%
1108425-003b	2011\0824-pcb\1108425-003b.RPA	A	1	0.0540	0.0553	0.0248	0.0133	0.0422	0.0433	0.0591	0.0365	2.68%
1108425-006b	2011\0824-pcb\1108425-006b.RPA	A	1	0.0447	0.0477	0.0491	0.0130	0.0599	0.0529	0.0447	0.0439	10.35%
1108425-007b1-5	1\0824-pcb\1108425-007b1-5.RPA	A	1	0.0089	0.0091	0.5088	0.5067	0.4113	0.4058	0.3898	0.4445	9.55%
1108425-008b	2011\0824-pcb\1108425-008b.RPA	A	1	0.0365	0.0366	0.7457	0.7709	0.7192	0.7609	0.8108	0.7615	0.54%
1108425-010b	2011\0824-pcb\1108425-010b.RPA	A	1	0.0504	0.0545	0.0431	0.1240	0.0782	0.1341	0.1300	0.1019	13.49%
1108425-007bms1-5	\0824-pcb\1108425-011a1-10.RPA	A	1	0.0041	0.0044	0.9964	0.9482	0.8846	0.8228	0.8694	0.9043	8.21%
1108425-007bmsd1-5	\0824-pcb\1108425-012a1-50.RPA	A	1	0.0006	0.0010	0.9802	1.7474	1.6940	0.8720	0.8199	1.2227	3.60%
1108425-013b	2011\0824-pcb\1108425-013b.RPA	A	1	0.0454	0.0344	0.9509	0.9770	0.7702	0.6539	0.6071	0.7919	3.42%
1108425-014b	2011\0824-pcb\1108425-014b.RPA	A	1	0.0457	0.0515	0.0900	0.1606	0.1282	0.4301	0.4851	0.2588	18.27%
1108425-016b	2011\0824-pcb\1108425-016b.RPA	A	1	0.0478	0.0425	0.3071	0.3766	0.3362	0.4822	0.4353	0.3875	9.11%
1108425-017b	2011\0824-pcb\1108425-017b.RPA	A	1	0.0460	0.0452	0.2718	0.3540	0.2881	0.3920	0.3779	0.3368	2.73%
1108425-018b	2011\0824-pcb\1108425-018b.RPA	A	1	0.0503	0.0517	1.2771	1.5481	1.3816	1.5016	1.5664	1.4550	4.34%
1108425-019b	2011\0824-pcb\1108425-019b.RPA	A	1	0.0521	0.0382	0.5065	0.5638	0.4485	0.4724	0.3998	0.4782	0.71%
1108447-002b	2011\0824-pcb\1108447-002b.RPA	A	1	0.0351	0.0362	0.0055	0.0125	0.0192	0.0579	0.0373	0.0265	10.29%
1108201-003a	2011\0824-pcb\1108201-003a.RPA	A	1	0.0403	0.0305	0.9568	0.9970	0.7464	1.0763	0.8492	0.9251	13.29%
1108201-008a	2011\0824-pcb\1108201-008a.RPA	A	1	0.0451	0.0404	0.0965	0.1606	0.0828	0.1737	0.0870	0.1201	2.76%
1108201-009a	2011\0824-pcb\1108201-009a.RPA	A	1	0.0404	0.0369	0.0875	0.1354	0.0675	0.1727	0.0612	0.1049	6.13%
1108201-010a	2011\0824-pcb\1108201-010a.RPA	A	1	0.0401	0.0545	0.9456	1.1951	0.7921	1.0576	1.2061	1.0393	4.47%
1108201-012a1-50	\0824-pcb\1108201-012a1-50.RPA	A	1	0.0006	0.0013	0.3666	0.3664	0.2744	0.3919	0.4178	0.3634	6.04%
1108201-001a1-10	\0824-pcb\1108201-001a1-10.RPA	A	1	0.0032	0.0028	0.4782	0.4844	0.3984	0.5409	0.5954	0.4995	3.09%
1108201-002a1-5	1\0824-pcb\1108201-002a1-5.RPA	A	1	0.0080	0.0075	0.8577	0.8530	0.7033	0.9007	0.9825	0.8594	2.08%
1108201-004a1-4	1\0824-pcb\1108201-004a1-4.RPA	A	1	0.0085	0.0077	0.5565	0.5993	0.4661	0.7011	0.7535	0.6153	3.52%
1108201-005a1-5	1\0824-pcb\1108201-005a1-5.RPA	A	1	0.0086	0.0079	0.3789	0.4284	0.3389	0.6251	0.5636	0.4670	15.52%
1108201-011a1-50	\0824-pcb\1108201-011a1-50.RPA	A	1	0.0006	0.0013	0.5433	0.6136	0.5060	0.5955	0.5926	0.5702	5.15%
1108201-006a1-5	1\0824-pcb\1108201-006a1-5.RPA	A	1	0.0085	0.0058	0.3932	0.4469	0.3622	0.5004	0.3542	0.4114	2.99%
1108201-007a1-5	1\0824-pcb\1108201-007a1-5.RPA	A	1	0.0078	0.0043	0.3732	0.4390	0.2884	0.4231	0.3185	0.3685	0.03%
1108201-013a1-20	\0824-pcb\1108201-013a1-20.RPA	A	1	0.0023	0.0022	0.6756	0.6541	0.5966	0.6651	0.7302	0.6643	7.24%
1108201-014a1-20	\0824-pcb\1108201-014a1-20.RPA	A	1	0.0021	0.0026	0.6836	0.6710	0.6008	0.6712	0.6909	0.6635	4.65%

Primary Column - Results Summary

Sample Name	Data File	Mode	Inj. #	Peak Names ------> TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	RPD
1108425-001b	2011\0824-pcb\1108425-001b.RPB	A	1	0.0498	0.0518	0.1575	0.1196	0.1289	0.1325	0.1575	0.1392	
1108425-002b	2011\0824-pcb\1108425-002b.RPB	A	1	0.0443	0.0705	0.0180	0.0572	0.0530	0.0627	0.0581	0.0498	
1108425-003b	2011\0824-pcb\1108425-003b.RPB	A	1	0.0542	0.0580	0.0209	0.0478	0.0373	0.0542	0.0274	0.0375	
1108425-006b	2011\0824-pcb\1108425-006b.RPB	A	1	0.0450	0.0514	0.0097	0.0607	0.0423	0.0603	0.0249	0.0396	
1108425-007b1-5	1\0824-pcb\1108425-007b1-5.RPB	A	1	0.0097	0.0087	0.5230	0.4265	0.4641	0.5880	0.4435	0.4891	
1108425-008b	2011\0824-pcb\1108425-008b.RPB	A	1	0.0372	0.0390	0.5757	0.8180	0.7719	0.8052	0.8572	0.7656	
1108425-010b	2011\0824-pcb\1108425-010b.RPB	A	1	0.0511	0.0578	0.0372	0.1093	0.0712	0.0899	0.1374	0.0890	
1108425-007bms1-5	\0824-pcb\1108425-011a1-10.RPB	A	1	0.0037	0.0042	0.8755	1.0661	0.9558	1.0695	0.9417	0.9817	
1108425-007bmsd1-5	\0824-pcb\1108425-012a1-50.RPB	A	1	0.0007	0.0010	0.9156	1.9442	0.8943	1.2004	0.9430	1.1795	
1108425-013b	2011\0824-pcb\1108425-013b.RPB	A	1	0.0469	0.0363	0.8108	0.8273	0.7141	0.7907	0.6834	0.7653	
1108425-014b	2011\0824-pcb\1108425-014b.RPB	A	1	0.0463	0.0571	0.1011	0.1528	0.1233	0.1808	0.5195	0.2155	
1108425-016b	2011\0824-pcb\1108425-016b.RPB	A	1	0.0485	0.0451	0.2423	0.3436	0.3445	0.3655	0.4726	0.3537	
1108425-017b	2011\0824-pcb\1108425-017b.RPB	A	1	0.0467	0.0485	0.2568	0.3022	0.3208	0.3458	0.4129	0.3277	
1108425-018b	2011\0824-pcb\1108425-018b.RPB	A	1	0.0517	0.0567	1.0920	1.6251	1.4943	1.6094	1.7765	1.5195	
1108425-019b	2011\0824-pcb\1108425-019b.RPB	A	1	0.0539	0.0408	0.4493	0.4788	0.4445	0.5478	0.4536	0.4748	
1108447-002b	2011\0824-pcb\1108447-002b.RPB	A	1	0.0368	0.0385	0.0080	0.0359	0.0126	0.0469	0.0433	0.0293	
1108201-003a	2011\0824-pcb\1108201-003a.RPB	A	1	0.0398	0.0331	1.0021	1.0988	1.0680	0.8631	1.2520	1.0568	
1108201-008a	2011\0824-pcb\1108201-008a.RPB	A	1	0.0446	0.0677	0.0436	0.0863	0.1905	0.0692	0.1947	0.1169	
1108201-009a	2011\0824-pcb\1108201-009a.RPB	A	1	0.0417	0.0587	0.0239	0.1116	0.1522	0.0471	0.2227	0.1115	
1108201-010a	2011\0824-pcb\1108201-010a.RPB	A	1	0.0416	0.0659	0.9463	1.1225	1.1297	0.9471	1.2882	1.0868	
1108201-012a1-50	\0824-pcb\1108201-012a1-50.RPB	A	1	0.0000	0.0010	0.4060	0.3684	0.4245	0.2877	0.4437	0.3861	
1108201-001a1-10	\0824-pcb\1108201-001a1-10.RPB	A	1	0.0032	0.0041	0.4283	0.4401	0.4769	0.4754	0.6007	0.4843	
1108201-002a1-5	1\0824-pcb\1108201-002a1-5.RPB	A	1	0.0089	0.0084	0.8137	0.8501	0.8545	0.8125	1.0568	0.8775	
1108201-004a1-4	1\0824-pcb\1108201-004a1-4.RPB	A	1	0.0086	0.0099	0.5520	0.5037	0.6809	0.6105	0.8396	0.6373	
1108201-005a1-5	1\0824-pcb\1108201-005a1-5.RPB	A	1	0.0094	0.0119	0.4479	0.4555	0.4883	0.4579	0.8783	0.5456	
1108201-011a1-50	\0824-pcb\1108201-011a1-50.RPB	A	1	0.0002	0.0012	0.4750	0.4885	0.5407	0.5532	0.6506	0.5416	
1108201-006a1-5	1\0824-pcb\1108201-006a1-5.RPB	A	1	0.0092	0.0074	0.3689	0.4350	0.4375	0.3645	0.5137	0.4239	
1108201-007a1-5	1\0824-pcb\1108201-007a1-5.RPB	A	1	0.0085	0.0064	0.3364	0.3653	0.3508	0.3333	0.4558	0.3683	
1108201-013a1-20	\0824-pcb\1108201-013a1-20.RPB	A	1	0.0021	0.0025	0.5847	0.5711	0.6009	0.5907	0.7424	0.6179	
1108201-014a1-20	\0824-pcb\1108201-014a1-20.RPB	A	1	0.0018	0.0024	0.6081	0.6000	0.6126	0.6021	0.7440	0.6334	

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-DUP01-080911	UNITS	IOA-SS-EU01-0002	RPD	D
PCB	AROCLOR-1260	7 J	MG/KG	27 J	117.65	20.00 NA-DX
PCB	TOTAL AROCLOR	7	MG/KG	27	117.65	20.00 R.L.

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-DUP02-081011	UNITS	IOA-SS-EU29-0002	RPD	D
PCB	AROCLOR-1260	63	MG/KG	59	6.56	4.00
PCB	TOTAL AROCLOR	63	MG/KG	59	6.56	4.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-DUP01-080911	UNITS	IOA-SS-EU01-0002	RPD	D	
PAH	ACENAPHTHENE	42 J	MG/KG	53 J	23.16	11.00	
PAH	ANTHRACENE	83 J	MG/KG	140 J	51.12	57.00	N/A < 2X R.L.
PAH	BENZO(A)ANTHRACENE	240 J	MG/KG	340 J	34.48	100.00	
PAH	BENZO(A)PYRENE	210 J	MG/KG	310 J	38.46	100.00	
PAH	BENZO(B)FLUORANTHENE	280 J	MG/KG	400 J	35.29	120.00	
PAH	BENZO(G,H,I)PERYLENE	68 J	MG/KG	150 J	75.23	82.00	N/A < 2X R.L.
PAH	BENZO(K)FLUORANTHENE	110 J	MG/KG	180 J	48.28	70.00	
PAH	CHRYSENE	210 J	MG/KG	350 J	50.00	140.00	
PAH	DIBENZO(A,H)ANTHRACENE	29 J	MG/KG	45 J	43.24	16.00	
PAH	FLUORANTHENE	480 J	MG/KG	760 J	45.16	280.00	
PAH	FLUORENE	42 J	MG/KG	54 J	25.00	12.00	
PAH	INDENO(1,2,3-CD)PYRENE	85 J	MG/KG	140 J	48.89	55.00	
PAH	PHENANTHRENE	310 J	MG/KG	510 J	48.78	200.00	
PAH	PYRENE	380 J	MG/KG	630 J	49.50	250.00	

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-DUP02-081011	UNITS	IOA-SS-EU29-0002	RPD	D
PAH	2-METHYLNAPHTHALENE	41 J	MG/KG	18 J	77.97	23.00 N/A<2XR.L.
PAH	ACENAPHTHENE	220 J	MG/KG	330 J	40.00	110.00
PAH	ACENAPHTHYLENE	ND	MG/KG	13 J	200.00	13.00 N/A<2XR.L.
PAH	ANTHRACENE	510 J	MG/KG	660 J	25.64	150.00
PAH	BENZO(A)ANTHRACENE	1500 J	MG/KG	1700 J	12.50	200.00
PAH	BENZO(A)PYRENE	1400 J	MG/KG	1300 J	7.41	100.00
PAH	BENZO(B)FLUORANTHENE	1900 J	MG/KG	2000 J	5.13	100.00
PAH	BENZO(G,H,I)PERYLENE	590 J	MG/KG	480 J	20.56	110.00
PAH	BENZO(K)FLUORANTHENE	890 J	MG/KG	800 J	10.65	90.00
PAH	CHRYSENE	1600 J	MG/KG	1800 J	11.76	200.00
PAH	DIBENZO(A,H)ANTHRACENE	150 J	MG/KG	150 J	0.00	0.00
PAH	FLUORANTHENE	3500 J	MG/KG	2600 J	29.51	900.00
PAH	FLUORENE	220 J	MG/KG	250 J	12.77	30.00
PAH	INDENO(1,2,3-CD)PYRENE	580 J	MG/KG	480 J	18.87	100.00
PAH	NAPHTHALENE	71 J	MG/KG	19 J	115.56	52.00 N/A<2XR.L.
PAH	PHENANTHRENE	2200 J	MG/KG	1800 J	20.00	400.00
PAH	PYRENE	3000 J	MG/KG	2900 J	3.39	100.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

TETRA TECH, INC. **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4972W

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108425
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 17/ Soil: PAH

IOA-SS-DUP01-080911[1]	IOA-SS-DUP02-081011[2]	IOA-SS-EU01-0002
IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU07-0002	IOA-SS-EU09-0002
IOA-SS-EU13-0002	IOA-SS-EU16-0002	IOA-SS-EU17-0002
IOA-SS-EU29-0002	IOA-SS-EU30-0002	IOA-SS-EU31-0002
IOA-SS-EU40-0002	IOA-SS-EU41-0002	

17/ Soil: PCB

IOA-SS-DUP01-080911[1]	IOA-SS-DUP02-081011[2]	IOA-SS-EU01-0002
IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU09-0002	IOA-SS-EU10-0002
IOA-SS-EU13-0002	IOA-SS-EU16-0002	IOA-SS-EU17-0002
IOA-SS-EU27-0002	IOA-SS-EU29-0002	IOA-SS-EU30-0002
IOA-SS-EU31-0002	IOA-SS-EU40-0002	IOA-SS-EU41-0002

[1]Field duplicate of IOA-SS-EU01-0002
[2]Field duplicate of IOA-SS-EU29-0002

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

PAH

The project goals with respect to accuracy were met for the polynuclear aromatic hydrocarbon (PAH) data set with the following exceptions. All PAH compounds in all soil samples were qualified as estimated due to the exceeded extraction holding time criterion. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were qualified as estimated in sample IOA-SS-EU09-0002 due to high matrix spike duplicate (MSD) recoveries; these results may be biased high. Benzo(b)fluoranthene, fluoranthene, phenanthrene, and pyrene were qualified as estimated in sample IOA-SS-EU29-0002 since these results exceeded the instrument calibration linear range. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values which may have a minor impact on data usability.

Acenaphthylene was qualified as estimated in select samples due to instrument calibration nonconformances. The data usability is not impacted since the sample results are much lower than the project screening limits. Benzo(a)anthracene was qualified as estimated in select samples due to the exceeded laboratory control sample (LCS) recovery criteria. The LCS recovery for benzo(a)anthracene is at the upper QC acceptance limit; therefore, data are not adversely affected and the data usability is not impacted. Chrysene, fluoranthene, phenanthrene, and pyrene were qualified as estimated in sample IOA-SS-EU09-0002 due to high matrix spike duplicate (MSD) recoveries. These results may be biased high; however, the data usability is not impacted since the sample results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project goals with respect to precision were met for the PAH data set. Chrysene, fluoranthene, phenanthrene, and pyrene were qualified as estimated in sample IOA-SS-EU09-0002 due to the exceeded matrix spike (MS)/MSD relative percent difference criterion. However, the data usability is not impacted since the sample results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project goals with respect to sensitivity were met for the PAH data set with the following exceptions. Benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported as non-detected (U) at the limit of detection (LOD) in select samples. The LODs for these compounds exceeded the project screening limits; therefore, the data usability may be impacted with regards to sensitivity.

The project goals with respect to laboratory data completeness were met for the PAH data set. Data usability was not impacted with regards to laboratory data completeness.

PCB

The project goals with respect to accuracy were met for the polychlorinated biphenyls (PCB) data set. Aroclor 1260 in sample IOA-SS-EU03-0002 was qualified as estimated (J) due to the exceeded surrogate recovery criteria. Although specific method criteria were not met in this instance, data usability is not impacted since the sample results which may be biased high are much lower than the project screening limits. The affected result is usable as an estimated value.

Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and/or 1260 were reported as non-detected (U) at the limit of detection (LOD) in all samples. The LODs met project screening limits for the PCB data set with the

following exceptions. The LODs for Aroclors 1016, 1221, 1232, 1242, 1248, and 1254 exceeded the project screening limits as a result of the required dilution performed on sample IOA-SS-EU10-0002; therefore, the data usability may be impacted with regards to sensitivity.

The project goals with respect to precision and laboratory data completeness were met for the PCB data set. Data usability was not impacted with regards to precision and laboratory data completeness.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **P. CALL** **DATE:** **DECEMBER 14, 2011**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –METALS, PERCENT MOISTURE**
CTO WE11 NAS SOUTH WEYMOUTH
SAMPLE DELIVERY GROUP (SDG) – 1108425

SAMPLES: 20/Soil/

IOA-SS-DUP01-080911	IOA-SS-DUP02-081011
IOA-SS-EU01-0002	IOA-SS-EU02-0002
IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU07-0002
IOA-SS-EU09-0002	IOA-SS-EU10-0002
IOA-SS-EU13-0002	IOA-SS-EU14-0002
IOA-SS-EU16-0002	IOA-SS-EU17-0002
IOA-SS-EU27-0002	IOA-SS-EU29-0002
IOA-SS-EU30-0002	IOA-SS-EU31-0002
IOA-SS-EU40-0002	IOA-SS-EU41-0002

Overview

The sample set for NAS South Weymouth, CTO WE11, SDG 1108425 consists of twenty (20) soil environmental samples. Two (2) field duplicate pairs (IOA-SS-EU01-0002 / IOA-SS-DUP01-080911 and IOA-SS-EU29-0002 / IOA-SS-DUP02-081011) were included within this SDG.

All samples, with the exception of IOA-SS-EU10-0002, were analyzed for target analyte list (TAL) metals and percent moisture. Sample IOA-SS-EU10-0002 was analyzed for percent moisture only. The samples were collected on August 9 and 10, 2011 and analyzed by RTI Laboratories, Inc. under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA/QC) criteria. Metals analyses were conducted using SW-846 methods 6020A. Mercury analyses were conducted using SW-846 method 7471A. Percent moisture analyses were conducted using ASTM method 2216. An EPA Region I, Tier II data validation was performed on the referenced samples.

These data were evaluated based on the following parameters:

- Data Completeness
* • Holding Times
* • ICP/MS Tune
* • Initial and Continuing Calibrations
- Laboratory Method / Preparation Blank Analyses
* • ICP Interference Results
* • Laboratory Control Sample Recoveries
- Matrix Spike Recoveries
* • ICP Serial Dilution Results

* • Internal Standard Recoveries
* • Field Duplicate Results
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Method / Preparation Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum[(1)]	0.02035 mg/kg	101.75 ug/kg
Antimony	0.134 ug/L	33.5 ug/kg
Barium	0.085 ug/L	21.25 ug/kg
Beryllium	0.093 ug/L	23.25 ug/kg
Calcium	6.640 ug/L	1660 ug/kg
Cadmium	0.089 ug/L	22.25 ug/kg
Chromium[(1)]	0.00855 mg/kg	42.75 mg/kg
Cobalt	0.107 ug/L	26.75 ug/kg
Copper[(1)]	0.0072 mg/kg	36.0 ug/kg
Iron	14.091 ug/L	3522.75 ug/kg
Lead	0.080 ug/L	20.0 ug/kg
Manganese[(1)]	0.00445 mg/kg	22.25 ug/kg
Nickel[(1)]	0.00545 mg/kg	27.25 ug/kg
Thallium	0.053 ug/L	13.25 ug/kg
Vanadium	0.069 ug/L	17.25 mg/kg
Zinc[(1)]	0.0237 mg/kg	118.5 ug/kg

(1) Maximum concentration present in a preparation blank.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the action level and greater than the LOD for antimony, beryllium, cadmium and thallium were qualified, "U".

Matrix Spike Recoveries

The matrix spike percent recoveries for calcium, lead and manganese were > 120% quality control limit. The positive results reported for calcium, lead and manganese were qualified as estimated, "J".

The matrix spike duplicate percent recovery for magnesium was < 80% quality control limit. The positive results reported for magnesium were qualified as estimated, "J".

Notes

Positive results reported greater than the method detection limit (MDL) but below the project quantitation limit (PQL) were qualified as estimated, "J".

The nondetected results are reported to the limit of detection (LOD). The LODs were not provided by the laboratory on the Form Is. The LODs were provided in the data base.

The initial and continuing calibration and CRDL standard summary forms were incorrectly filled out by the laboratory. The found values could not be matched up with the raw data as the forms did not contain a sample date and time or the correct results. The raw data was used for initial and continuing calibration and CRDL standard recovery evaluation. The percent recoveries were calculated by the validator.

The initial and continuing blank summary forms were incorrectly filled out by the laboratory. The found values could not be matched up with the raw data as the forms did not contain a sample date and time or the correct results. It was also noted that the laboratory reported the negative results from the raw data as positive on the blank summary forms. The nondetected results on the summary forms were reported in mg/L units and the positive results were reported in ug/L. The raw data was used for blank evaluation.

The ICP serial dilution summary form was not included in the data package. Therefore, serial dilution compliances were not evaluated

The Form 14s (analysis run logs) were not filled out correctly by the laboratory. Initial and continuing calibrations were not listed in the run log and several of the analytes were marked as analyzed on a certain date and time when the raw data shows otherwise.

Executive Summary

Laboratory Performance: Several contaminants were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: The matrix spike and/or matrix spike duplicate percent recoveries for calcium, lead, manganese and magnesium were outside the quality control limits. Positive results reported greater than the MDL but below the PQL were qualified as estimated.

The data for these analyses were reviewed with reference to the Region 1 EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, Part VI, November 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009.

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS
Terri L. Solomon
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP01-080911			IOA-SS-DUP01-080911DL			IOA-SS-DUP02-081011			IOA-SS-DUP02-081011DL		
SDG: 1108425	LAB_ID	1108425-003C			1108425-003C			1108425-016C			1108425-016C		
FRACTION: M	SAMP_DATE	8/9/2011			8/9/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	89.4			89.4			92.8			92.8		
	DUP_OF	IOA-SS-EU01-0002			IOA-SS-EU01-0002DL			IOA-SS-EU29-0002			IOA-SS-EU29-0002DL		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4800000						6000000					
ANTIMONY		110	U	A				200	U	A			
ARSENIC		1700						5000					
BARIUM		18000						15000					
BERYLLIUM		370	U	A				380					
CADMIUM		200	U	A				200	U	A			
CALCIUM					1500000	J	D				320000	J	D
CHROMIUM		5700						10000					
COBALT		3100						2100					
COPPER		7800						3300					
IRON		11000000						17000000					
LEAD		14000	J	D				12000	J	D			
MAGNESIUM					1700000	J	D				1100000	J	D
MANGANESE		270000	J	D				84000	J	D			
MERCURY		12	J	P				7.3	J	P			
NICKEL		4700						5000					
POTASSIUM					360000						390000		
SELENIUM		620	J	P				480	J	P			
SILVER		75	U					67	U				
SODIUM					52000	J	P				28000	J	P
THALLIUM		110	U	A				88	U	A			
VANADIUM		12000						30000					
ZINC		29000						21000					

PROJ_NO: 02073 SDG: 1108425 FRACTION: M MEDIA: SOIL	NSAMPLE	IOA-SS-EU01-0002			IOA-SS-EU01-0002DL			IOA-SS-EU02-0002			IOA-SS-EU02-0002DL		
	LAB_ID	1108425-001C			1108425-001C			1108425-005C			1108425-005C		
	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.2			85.2			89.0			89.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4400000						5400000					
ANTIMONY		150	U	A				84	U	A			
ARSENIC		1500						1000					
BARIUM		17000						17000					
BERYLLIUM		440						300	U	A			
CADMIUM		280	U	A				150	U	A			
CALCIUM					1500000	J	D				1100000	J	D
CHROMIUM		5500						5900					
COBALT		3200						2800					
COPPER		7700						4800					
IRON		9800000						9600000					
LEAD		16000	J	D				6000	J	D			
MAGNESIUM					1600000	J	D				1700000	J	D
MANGANESE		310000	J	D				140000	J	D			
MERCURY		20	J	P				5.2	J	P			
NICKEL		4700						4300					
POTASSIUM					330000						500000		
SELENIUM		870						670	J	P			
SILVER		84	U					69	U				
SODIUM					50000	J	P				51000	J	P
THALLIUM		390						77	U				
VANADIUM		12000						13000					
ZINC		29000						21000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU03-0002			IOA-SS-EU03-0002DL			IOA-SS-EU04-0002			IOA-SS-EU04-0002DL		
SDG: 1108425	LAB_ID	1108425-002C			1108425-002C			1108425-006C			1108425-006C		
FRACTION: M	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	85.5			85.5			89.3			89.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		6600000						4400000					
ANTIMONY		130	U	A				100	U	A			
ARSENIC		1100						1700					
BARIUM		16000						14000					
BERYLLIUM		250	U	A				300	U	A			
CADMIUM		200	U	A				170	U	A			
CALCIUM					940000	J	D				1000000	J	D
CHROMIUM		15000						7400					
COBALT		3500						2900					
COPPER		5800						5200					
IRON		12000000						11000000					
LEAD		9000	J	D				5300	J	D			
MAGNESIUM					2000000	J	D				1400000	J	D
MANGANESE		180000	J	D				160000	J	D			
MERCURY		9	J	P				1.9	J	P			
NICKEL		14000						5200					
POTASSIUM					280000						370000		
SELENIUM		720						650	J	P			
SILVER		69	U					68	U				
SODIUM					39000	J	P				52000	J	
THALLIUM		140	U	A				76	U				
VANADIUM		13000						14000					
ZINC		25000						22000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU06-0002			IOA-SS-EU06-0002DL			IOA-SS-EU07-0002			IOA-SS-EU07-0002DL		
SDG: 1108425	LAB_ID	1108425-008C			1108425-008C			1108425-004B			1108425-004B		
FRACTION: M	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.1			86.1			88.9			88.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5500000						7400000					
ANTIMONY		230	U	A				130	U	A			
ARSENIC		890						2400					
BARIUM		19000						19000					
BERYLLIUM		360						360					
CADMIUM		250	U	A				370					
CALCIUM					1600000	J	D				1100000	J	D
CHROMIUM		6900						9500					
COBALT		2700						5500					
COPPER		5000						11000					
IRON		11000000						17000000					
LEAD		16000	J	D				11000	J	D			
MAGNESIUM					1600000	J	D				2900000	J	D
MANGANESE		170000	J	D				330000	J	D			
MERCURY		7.3	J	P				6	J	P			
NICKEL		4200						9100					
POTASSIUM					290000						400000		
SELENIUM		620	J	P				580	J	P			
SILVER		100	U					61	U				
SODIUM					59000	J	P				40000	J	P
THALLIUM		68	U					77	U				
VANADIUM		13000						18000					
ZINC		27000						44000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU09-0002			IOA-SS-EU09-0002DL			IOA-SS-EU13-0002			IOA-SS-EU13-0002DL		
SDG: 1108425	LAB_ID	1108425-007C			1108425-007C			1108425-010C			1108425-010C		
FRACTION: M	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.1			86.1			81.5			81.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5600000						6600000					
ANTIMONY		240						190	U	A			
ARSENIC		1400						1300					
BARIUM		22000						21000					
BERYLLIUM		300	U	A				220	U	A			
CADMIUM		300	U	A				250	U	A			
CALCIUM					1100000	J	D				810000	J	D
CHROMIUM		8100						8600					
COBALT		2800						1400					
COPPER		9700						6200					
IRON		11000000						6100000					
LEAD		36000	J	D				27000	J	D			
MAGNESIUM					1600000	J	D				900000	J	D
MANGANESE		180000	J	D				75000	J	D			
MERCURY		20	J	P				38					
NICKEL		4600						5300					
POTASSIUM					240000						260000		
SELENIUM		650	J	P				880					
SILVER		63	U					110	J	P			
SODIUM					51000	J	P				41000	J	P
THALLIUM		370						69	U				
VANADIUM		15000						18000					
ZINC		37000						25000					

PROJ_NO: 02073 SDG: 1108425 FRACTION: M MEDIA: SOIL	NSAMPLE	IOA-SS-EU14-0002			IOA-SS-EU14-0002DL			IOA-SS-EU16-0002			IOA-SS-EU16-0002DL		
	LAB_ID	1108425-009A			1108425-009A			1108425-018C			1108425-018C		
	SAMP_DATE	8/9/2011			8/9/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.6			92.6			82.9			82.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4900000						10000000					
ANTIMONY		140	U	A				150	U	A			
ARSENIC		1900						1300					
BARIUM		16000						21000					
BERYLLIUM		380						290	U	A			
CADMIUM		180	U	A				550					
CALCIUM					1100000	J	D				810000	J	D
CHROMIUM		6300						13000					
COBALT		2500						2800					
COPPER		4400						7000					
IRON		11000000						9900000					
LEAD		13000	J	D				56000	J	D			
MAGNESIUM					1300000	J	D				1700000	J	D
MANGANESE		150000	J	D				160000	J	D			
MERCURY		2.3	J	P				31	J	P			
NICKEL		4200						7600					
POTASSIUM					320000						240000		
SELENIUM		700	J	P				980					
SILVER		89	U					60	J	P			
SODIUM					60000	J	P				49000	J	P
THALLIUM		78	U					82	U				
VANADIUM		18000						25000					
ZINC		23000						36000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU17-0002			IOA-SS-EU17-0002DL			IOA-SS-EU27-0002			IOA-SS-EU27-0002DL		
SDG: 1108425	LAB_ID	1108425-011C			1108425-011C			1108425-015B			1108425-015B		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	88.7			88.7			90.3			90.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		6100000						7100000					
ANTIMONY		710						260	U	A			
ARSENIC		1200						2100					
BARIUM		21000						19000					
BERYLLIUM		430						330	U	A			
CADMIUM		570						180	U	A			
CALCIUM					1100000	J	D				870000	J	D
CHROMIUM		12000						9400					
COBALT		2800						4400					
COPPER		8300						7100					
IRON		15000000						14000000					
LEAD		69000	J	D				25000	J	D			
MAGNESIUM					1800000	J	D				3100000	J	D
MANGANESE		390000	J	D				140000	J	D			
MERCURY		11	J	P				75					
NICKEL		6900						16000					
POTASSIUM					290000						330000		
SELENIUM		1100						500	J	P			
SILVER		87	J	P				100	U				
SODIUM					44000	J	P				37000	J	P
THALLIUM		70	U					75	U				
VANADIUM		20000						33000					
ZINC		70000						57000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU29-0002			IOA-SS-EU29-0002DL			IOA-SS-EU30-0002			IOA-SS-EU30-0002DL		
SDG: 1108425	LAB_ID	1108425-017C			1108425-017C			1108425-019C			1108425-019C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.6			91.6			90.0			90.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7800000						13000000					
ANTIMONY		240	U	A				100	U	A			
ARSENIC		6400						1500					
BARIUM		18000						17000					
BERYLLIUM		460						420					
CADMIUM		240	U	A				150	U	A			
CALCIUM					480000	J	D				1100000	J	D
CHROMIUM		14000						17000					
COBALT		3000						3900					
COPPER		4200						5700					
IRON		21000000						16000000					
LEAD		20000	J	D				9300	J	D			
MAGNESIUM					1800000	J	D				3600000	J	D
MANGANESE		100000	J	D				200000	J	D			
MERCURY		7.3	J	P				19	J	P			
NICKEL		7700						11000					
POTASSIUM					480000						230000		
SELENIUM		790	J	P				850	J	P			
SILVER		92	U					95	U				
SODIUM					38000	J	P				46000	J	P
THALLIUM		88	U					89	U				
VANADIUM		39000						21000					
ZINC		29000						34000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU31-0002			IOA-SS-EU31-0002DL			IOA-SS-EU40-0002			IOA-SS-EU40-0002DL		
SDG: 1108425	LAB_ID	1108425-013C			1108425-013C			1108425-014C			1108425-014C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.9			87.9			78.1			78.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7000000						10000000					
ANTIMONY		92	U	A				350					
ARSENIC		2200						5300					
BARIUM		17000						39000					
BERYLLIUM		410						400					
CADMIUM		270	U	A				420					
CALCIUM					1100000	J	D				1400000	J	D
CHROMIUM		10000						15000					
COBALT		4100						3500					
COPPER		9200						15000					
IRON		18000000						16000000					
LEAD		10000	J	D				100000	J	D			
MAGNESIUM					2600000	J	D				1900000	J	D
MANGANESE		440000	J	D				210000	J	D			
MERCURY		1.4	J	P				150					
NICKEL		9000						9200					
POTASSIUM					440000						290000		
SELENIUM		480	J	P				960					
SILVER		60	U					390					
SODIUM					59000	J	P				58000	J	P
THALLIUM		79	U					83	U				
VANADIUM		17000						25000					
ZINC		36000						78000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU41-0002			IOA-SS-EU41-0002DL		
SDG: 1108425	LAB_ID	1108425-020C			1108425-020C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	89.5			89.5		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		9200000					
ANTIMONY		70	U	A			
ARSENIC		750					
BARIUM		15000					
BERYLLIUM		270	U	A			
CADMIUM		100	U	A			
CALCIUM					750000	J	D
CHROMIUM		10000					
COBALT		2600					
COPPER		3400					
IRON		11000000					
LEAD		7100	J	D			
MAGNESIUM					2000000	J	D
MANGANESE		130000	J	D			
MERCURY		11	J	P			
NICKEL		6500					
POTASSIUM					320000		
SELENIUM		600	J	P			
SILVER		78	U				
SODIUM					51000	J	P
THALLIUM		75	U				
VANADIUM		16000					
ZINC		23000					

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP01-080911			IOA-SS-DUP02-081011			IOA-SS-EU01-0002			IOA-SS-EU02-0002		
SDG: 1108425	LAB_ID	1108425-003C			1108425-016C			1108425-001C			1108425-005C		
FRACTION: MISC	SAMP_DATE	8/9/2011			8/10/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	IOA-SS-EU01-0002			IOA-SS-EU29-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		11			7			15			11		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU03-0002			IOA-SS-EU04-0002			IOA-SS-EU06-0002			IOA-SS-EU07-0002		
SDG: 1108425	LAB_ID	1108425-002C			1108425-006C			1108425-008C			1108425-004B		
FRACTION: MISC	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		15			11			14			11		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU09-0002			IOA-SS-EU10-0002			IOA-SS-EU13-0002			IOA-SS-EU14-0002		
SDG: 1108425	LAB_ID	1108425-007C			1108425-012A			1108425-010C			1108425-009A		
FRACTION: MISC	SAMP_DATE	8/9/2011			8/10/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		14			18			19			7		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU16-0002			IOA-SS-EU17-0002			IOA-SS-EU27-0002			IOA-SS-EU29-0002		
SDG: 1108425	LAB_ID	1108425-018C			1108425-011C			1108425-015B			1108425-017C		
FRACTION: MISC	SAMP_DATE	8/10/2011			8/10/2011			8/9/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		17			11			9			8		

PROJ_NO: 02073 SDG: 1108425 FRACTION: MISC MEDIA: SOIL	NSAMPLE	IOA-SS-EU30-0002			IOA-SS-EU31-0002			IOA-SS-EU40-0002			IOA-SS-EU41-0002		
	LAB_ID	1108425-019C			1108425-013C			1108425-014C			1108425-020C		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		10			12			22			11		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-003 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP01-080911

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				SW8082	SW3550C	Analyst: MB
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Aroclor 1260	7.0	37	J	µg/Kg-dry	1	8/24/2011 5:14:09 PM
Total PCBs	7.0	37		µg/Kg-dry	1	8/24/2011 5:14:09 PM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/24/2011 5:14:09 PM
Surr: Tetrachloro-m-xylene	108	60-125		%REC	1	8/24/2011 5:14:09 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				SW6020A	SW3050B	Analyst: AV
Aluminum	4,800,000	180,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Arsenic	1,700	270		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Barium	18,000	4,600		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Beryllium	370	360		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Cadmium	200	180		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Calcium	1,500,000	180,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Chromium	5,700	1,800		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Cobalt	3,100	910		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Copper	7,800	910		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Iron	11,000,000	730,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Lead	14,000	180		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Magnesium	1,700,000	91,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Manganese	270,000	18,000		µg/Kg-dry	400	8/27/2011 12:03:12 PM
Nickel	4,700	1,800		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Potassium	360,000	91,000		µg/Kg-dry	20	8/27/2011 1:54:25 PM
Selenium	620	910	J	µg/Kg-dry	20	8/27/2011 10:02:56 AM
Sodium	52,000	91,000	J	µg/Kg-dry	20	8/27/2011 1:54:25 PM
Thallium	110	360	J	µg/Kg-dry	20	8/27/2011 10:02:56 AM
Vanadium	12,000	730		µg/Kg-dry	20	8/27/2011 10:02:56 AM
Zinc	29,000	9,100		µg/Kg-dry	20	8/27/2011 10:02:56 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-003 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP01-080911

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	110	190	J	µg/Kg-dry	10	9/7/2011 7:19:02 PM
Silver	ND	110	U	µg/Kg-dry	10	9/7/2011 7:19:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	37	J	µg/Kg-dry	1	8/24/2011 11:44:40 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Acenaphthene	42	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Anthracene	83	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(a)anthracene	240	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(a)pyrene	210	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(b)fluoranthene	280	180	mH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(g,h,i)perylene	68	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Benzo(k)fluoranthene	110	180	JmH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Chrysene	210	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Dibenzo (a,h) anthracene	29	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Fluoranthene	480	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Fluorene	42	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Indeno(1,2,3-cd)pyrene	85	180	JH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Phenanthrene	310	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Pyrene	380	180	H	µg/Kg-dry	1	9/30/2011 8:47:00 PM
Surr: 2-Fluorobiphenyl	77.8	45-105	H	%REC	1	9/30/2011 8:47:00 PM
Surr: Nitrobenzene-d5	82.8	35-100	H	%REC	1	9/30/2011 8:47:00 PM
Surr: Terphenyl-d14	91.8	30-125	H	%REC	1	9/30/2011 8:47:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-016 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP02-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	**Analyst: MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 12:12:35 AM
Aroclor 1260	63	35		µg/Kg-dry	1	8/25/2011 12:12:35 AM
Total PCBs	63	35		µg/Kg-dry	1	8/25/2011 12:12:35 AM
Surr: Decachlorobiphenyl	90.2	60-125		%REC	1	8/25/2011 12:12:35 AM
Surr: Tetrachloro-m-xylene	96.0	60-125		%REC	1	8/25/2011 12:12:35 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,000,000	150,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Arsenic	5,000	230		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Barium	15,000	3,800		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Beryllium	380	310		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Cadmium	200	150		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Calcium	320,000	150,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Chromium	10,000	1,500		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Cobalt	2,100	770		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Copper	3,300	770		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Iron	17,000,000	620,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Lead	12,000	150		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Magnesium	1,100,000	77,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Manganese	84,000	15,000		µg/Kg-dry	400	8/27/2011 12:25:56 PM
Nickel	5,000	1,500		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Potassium	390,000	77,000		µg/Kg-dry	20	8/27/2011 2:29:47 PM
Selenium	480	770	J	µg/Kg-dry	20	8/27/2011 10:45:27 AM
Sodium	28,000	77,000	J	µg/Kg-dry	20	8/27/2011 2:29:47 PM
Thallium	88	310	J	µg/Kg-dry	20	8/27/2011 10:45:27 AM
Vanadium	30,000	620		µg/Kg-dry	20	8/27/2011 10:45:27 AM
Zinc	21,000	7,700		µg/Kg-dry	20	8/27/2011 10:45:27 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-016 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP02-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	200	170		µg/Kg-dry	10	9/7/2011 7:33:21 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:33:21 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	30	J	µg/Kg-dry	1	8/24/2011 12:08:06 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	41	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Acenaphthene	220	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Acenaphthylene	ND	850	UH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Anthracene	510	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(a)anthracene	1,500	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(a)pyrene	1,400	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(b)fluoranthene	1,900	850	mH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(g,h,i)perylene	590	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Benzo(k)fluoranthene	890	850	mH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Chrysene	1,600	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Dibenzo (a,h) anthracene	150	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Fluoranthene	3,500	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Fluorene	220	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Indeno(1,2,3-cd)pyrene	580	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Naphthalene	71	850	JH	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Phenanthrene	2,200	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Pyrene	3,000	850	H	µg/Kg-dry	5	9/23/2011 3:57:00 PM
Surr: 2-Fluorobiphenyl	93.0	45-105	H	%REC	5	9/23/2011 3:57:00 PM
Surr: Nitrobenzene-d5	87.2	35-100	H	%REC	5	9/23/2011 3:57:00 PM
Surr: Terphenyl-d14	115	30-125	H	%REC	5	9/23/2011 3:57:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.2	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 10:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU01-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Aroclor 1260	27	38	J	µg/Kg-dry	1	8/24/2011 4:25:44 PM
Total PCBs	27	38		µg/Kg-dry	1	8/24/2011 4:25:44 PM
Surr: Decachlorobiphenyl	104	60-125		%REC	1	8/24/2011 4:25:44 PM
Surr: Tetrachloro-m-xylene	99.5	60-125		%REC	1	8/24/2011 4:25:44 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,400,000	140,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Arsenic	1,500	220		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Barium	17,000	3,600		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Beryllium	440	290		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Cadmium	280	140		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Calcium	1,500,000	140,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Chromium	5,500	1,400		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Cobalt	3,200	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Copper	7,700	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Iron	9,800,000	580,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Lead	16,000	140		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Magnesium	1,600,000	72,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Manganese	310,000	14,000		µg/Kg-dry	400	8/27/2011 12:01:32 PM
Nickel	4,700	1,400		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Potassium	330,000	72,000		µg/Kg-dry	20	8/27/2011 1:52:44 PM
Selenium	870	720		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Sodium	50,000	72,000	J	µg/Kg-dry	20	8/27/2011 1:52:44 PM
Thallium	390	290		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Vanadium	12,000	580		µg/Kg-dry	20	8/27/2011 9:59:43 AM
Zinc	29,000	7,200		µg/Kg-dry	20	8/27/2011 9:59:43 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 10:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU01-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	150	210	J	µg/Kg-dry	10	9/7/2011 7:17:28 PM
Silver	ND	130	U	µg/Kg-dry	10	9/7/2011 7:17:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	20	34	J	µg/Kg-dry	1	8/24/2011 11:41:39 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Acenaphthene	53	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Anthracene	140	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(a)anthracene	340	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(a)pyrene	310	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(b)fluoranthene	400	190	mH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(g,h,i)perylene	150	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Benzo(k)fluoranthene	180	190	JmH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Chrysene	350	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Dibenzo (a,h) anthracene	45	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Fluoranthene	760	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Fluorene	54	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Indeno(1,2,3-cd)pyrene	140	190	JH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Phenanthrene	510	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Pyrene	630	190	H	µg/Kg-dry	1	10/4/2011 3:57:00 PM
Surr: 2-Fluorobiphenyl	84.5	45-105	H	%REC	1	10/4/2011 3:57:00 PM
Surr: Nitrobenzene-d5	82.6	35-100	H	%REC	1	10/4/2011 3:57:00 PM
Surr: Terphenyl-d14	93.0	30-125	H	%REC	1	10/4/2011 3:57:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU02-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Aroclor 1260	ND	36	U	µg/Kg-dry	1	8/24/2011 6:09:13 PM
Total PCBs	ND	36		µg/Kg-dry	1	8/24/2011 6:09:13 PM
Surr: Decachlorobiphenyl	72.5	60-125		%REC	1	8/24/2011 6:09:13 PM
Surr: Tetrachloro-m-xylene	76.5	60-125		%REC	1	8/24/2011 6:09:13 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	5,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Arsenic	1,000	230		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Barium	17,000	3,800		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Beryllium	300	310	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Cadmium	150	150	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Chromium	5,900	1,500		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Cobalt	2,800	770		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Copper	4,800	770		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Iron	9,600,000	610,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Lead	6,000	150		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Magnesium	1,700,000	77,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Manganese	140,000	15,000		µg/Kg-dry	400	8/27/2011 12:12:01 PM
Nickel	4,300	1,500		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Potassium	500,000	77,000		µg/Kg-dry	20	8/27/2011 2:17:18 PM
Selenium	670	770	J	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Sodium	51,000	77,000	J	µg/Kg-dry	20	8/27/2011 2:17:18 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:15:58 AM
Vanadium	13,000	610		µg/Kg-dry	20	8/27/2011 10:15:58 AM
Zinc	21,000	7,700		µg/Kg-dry	20	8/27/2011 10:15:58 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU02-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	84	170	J	µg/Kg-dry	10	9/7/2011 7:20:36 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:20:36 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	5.2	29	J	µg/Kg-dry	1	8/24/2011 11:50:33 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Acenaphthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Acenaphthylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(a)anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(a)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(b)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(g,h,i)perylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Benzo(k)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Chrysene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Dibenzo (a,h) anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Fluorene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Indeno(1,2,3-cd)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Naphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Phenanthrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 8:24:00 PM
Surr: 2-Fluorobiphenyl	85.4	45-105	H	%REC	5	9/30/2011 8:24:00 PM
Surr: Nitrobenzene-d5	83.4	35-100	H	%REC	5	9/30/2011 8:24:00 PM
Surr: Terphenyl-d14	97.2	30-125	H	%REC	5	9/30/2011 8:24:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU03-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Aroclor 1260	9.5	38	J	µg/Kg-dry	1	8/24/2011 4:49:59 PM
Total PCBs	9.5	38		µg/Kg-dry	1	8/24/2011 4:49:59 PM
Surr: Decachlorobiphenyl	141	60-125	S	%REC	1	8/24/2011 4:49:59 PM
Surr: Tetrachloro-m-xylene	88.5	60-125		%REC	1	8/24/2011 4:49:59 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A** **SW3050B** Analyst: **AV**		
METALS, ICP/MS						
Aluminum	6,600,000	130,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Arsenic	1,100	200		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Barium	16,000	3,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Beryllium	250	270	J	µg/Kg-dry	20	8/27/2011 10:01:19 AM
Cadmium	200	130		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Calcium	940,000	130,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Chromium	15,000	1,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Cobalt	3,500	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Copper	5,800	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Iron	12,000,000	530,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Lead	9,000	130		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Magnesium	2,000,000	66,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Manganese	180,000	13,000		µg/Kg-dry	400	8/27/2011 12:02:22 PM
Nickel	14,000	1,300		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Potassium	280,000	66,000		µg/Kg-dry	20	8/27/2011 1:53:34 PM
Selenium	720	660		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Sodium	39,000	66,000	J	µg/Kg-dry	20	8/27/2011 1:53:34 PM
Thallium	140	270	J	µg/Kg-dry	20	8/27/2011 10:01:19 AM
Vanadium	13,000	530		µg/Kg-dry	20	8/27/2011 10:01:19 AM
Zinc	25,000	6,600		µg/Kg-dry	20	8/27/2011 10:01:19 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU03-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	170	J	µg/Kg-dry	10	9/7/2011 7:18:15 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:18:15 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	9.0	42	J	µg/Kg-dry	1	8/24/2011 11:43:07 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Acenaphthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Acenaphthylene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Anthracene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(a)anthracene	53	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(a)pyrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(b)fluoranthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(g,h,i)perylene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Benzo(k)fluoranthene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Chrysene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Dibenzo (a,h) anthracene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Fluoranthene	76	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Fluorene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Naphthalene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Phenanthrene	ND	930	UH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Pyrene	64	930	JH	µg/Kg-dry	5	9/30/2011 7:15:00 PM
Surr: 2-Fluorobiphenyl	88.2	45-105	H	%REC	5	9/30/2011 7:15:00 PM
Surr: Nitrobenzene-d5	82.2	35-100	H	%REC	5	9/30/2011 7:15:00 PM
Surr: Terphenyl-d14	93.2	30-125	H	%REC	5	9/30/2011 7:15:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:			
	*/X	Value exceeds Maximum Contaminant Level	
	E	Value above quantitation range	
	J	Estimated concentration	
	ND	Not Detected at the Reporting Limit	
	RL	Reporting Limit	
	B	Analyte detected in the associated Method Blank	
	H	Holding times for preparation or analysis exceeded	
	M	Manual Integration used to determine area response	
	PL	Permit Limit	
	S	Spike Recovery outside accepted recovery limits	

Revision v1

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU04-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Aroclor 1260	7.3	37	J	µg/Kg-dry	1	8/24/2011 6:33:24 PM
Total PCBs	7.3	37		µg/Kg-dry	1	8/24/2011 6:33:24 PM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/24/2011 6:33:24 PM
Surr: Tetrachloro-m-xylene	90.1	60-125		%REC	1	8/24/2011 6:33:24 PM
TARGET ANALYTE LIST METALS (23) **METALS, ICP/MS**				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	4,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Arsenic	1,700	230		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Barium	14,000	3,800		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Beryllium	300	300	J	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Cadmium	170	150		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Calcium	1,000,000	150,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Chromium	7,400	1,500		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Cobalt	2,900	760		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Copper	5,200	760		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Iron	11,000,000	610,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Lead	5,300	150		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Magnesium	1,400,000	76,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Manganese	160,000	15,000		µg/Kg-dry	400	8/27/2011 12:12:51 PM
Nickel	5,200	1,500		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Potassium	370,000	76,000		µg/Kg-dry	20	8/27/2011 2:18:09 PM
Selenium	650	760	J	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Sodium	52,000	76,000	J	µg/Kg-dry	20	8/27/2011 2:18:09 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:17:35 AM
Vanadium	14,000	610		µg/Kg-dry	20	8/27/2011 10:17:35 AM
Zinc	22,000	7,600		µg/Kg-dry	20	8/27/2011 10:17:35 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 12:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU04-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	170	J	µg/Kg-dry	10	9/7/2011 7:27:08 PM
Silver	ND	100	U	µg/Kg-dry	10	9/7/2011 7:27:08 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.9	28	J	µg/Kg-dry	1	8/24/2011 11:52:02 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT-3**
2-Methylnaphthalene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Acenaphthene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Acenaphthylene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Anthracene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(a)anthracene	110	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(a)pyrene	97	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(b)fluoranthene	130	890	JmH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(g,h,i)perylene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Benzo(k)fluoranthene	100	890	JmH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Chrysene	140	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Dibenzo (a,h) anthracene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Fluoranthene	250	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Fluorene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Naphthalene	ND	890	UH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Phenanthrene	120	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Pyrene	210	890	JH	µg/Kg-dry	5	9/30/2011 9:33:00 PM
Surr: 2-Fluorobiphenyl	81.0	45-105	H	%REC	5	9/30/2011 9:33:00 PM
Surr: Nitrobenzene-d5	72.0	35-100	H	%REC	5	9/30/2011 9:33:00 PM
Surr: Terphenyl-d14	88.2	30-125	H	%REC	5	9/30/2011 9:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU06-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 7:21:44 PM
Aroclor 1260	150	38		µg/Kg-dry	1	8/24/2011 7:21:44 PM
Total PCBs	150	38		µg/Kg-dry	1	8/24/2011 7:21:44 PM
Surr: Decachlorobiphenyl	77.9	60-125		%REC	1	8/24/2011 7:21:44 PM
Surr: Tetrachloro-m-xylene	74.4	60-125		%REC	1	8/24/2011 7:21:44 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B** Analyst: **AV**		
Aluminum	5,500,000	140,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Arsenic	890	210		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Barium	19,000	3,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Beryllium	360	270		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Cadmium	250	140		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Calcium	1,600,000	140,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Chromium	6,900	1,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Cobalt	2,700	680		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Copper	5,000	680		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Iron	11,000,000	550,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Lead	16,000	140		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Magnesium	1,600,000	68,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Manganese	170,000	14,000		µg/Kg-dry	400	8/27/2011 12:13:42 PM
Nickel	4,200	1,400		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Potassium	290,000	68,000		µg/Kg-dry	20	8/27/2011 2:19:00 PM
Selenium	620	680	J	µg/Kg-dry	20	8/27/2011 10:19:13 AM
Sodium	59,000	68,000	J	µg/Kg-dry	20	8/27/2011 2:19:00 PM
Thallium	ND	270	U	µg/Kg-dry	20	8/27/2011 10:19:13 AM
Vanadium	13,000	550		µg/Kg-dry	20	8/27/2011 10:19:13 AM
Zinc	27,000	6,800		µg/Kg-dry	20	8/27/2011 10:19:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU06-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	230	260	J	µg/Kg-dry	10	9/7/2011 7:27:56 PM
Silver	ND	160	U	µg/Kg-dry	10	9/7/2011 7:27:56 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	37	J	µg/Kg-dry	1	8/24/2011 11:57:47 AM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS**~~ **SEMI-VOLATILE ORGANIC COMPOUNDS**				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT3**~~
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Acenaphthene	34	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Acenaphthylene	94	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Anthracene	86	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(a)anthracene	380	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(a)pyrene	360	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(b)fluoranthene	430	190	mH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(g,h,i)perylene	120	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Benzo(k)fluoranthene	130	190	JmH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Chrysene	370	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Dibenzo (a,h) anthracene	47	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Fluoranthene	430	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Fluorene	30	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Indeno(1,2,3-cd)pyrene	110	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Naphthalene	11	190	JH	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Phenanthrene	200	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Pyrene	480	190	H	µg/Kg-dry	1	9/30/2011 10:19:00 PM
Surr: 2-Fluorobiphenyl	83.0	45-105	H	%REC	1	9/30/2011 10:19:00 PM
Surr: Nitrobenzene-d5	87.3	35-100	H	%REC	1	9/30/2011 10:19:00 PM
~~Surr: Terphenyl-d14~~	~~94.3~~	~~30-125~~	~~H~~	~~%REC~~	~~1~~	~~9/30/2011 10:19:00 PM~~
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU07-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,400,000	150,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Arsenic	2,400	230		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Barium	19,000	3,900		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Beryllium	360	310		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Cadmium	370	150		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Chromium	9,500	1,500		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Cobalt	5,500	770		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Copper	11,000	770		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Iron	17,000,000	620,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Lead	11,000	150		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Magnesium	2,900,000	77,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Manganese	330,000	15,000		µg/Kg-dry	400	8/27/2011 12:04:03 PM
Nickel	9,100	1,500		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Potassium	400,000	77,000		µg/Kg-dry	20	8/27/2011 1:55:15 PM
Selenium	580	770	J	µg/Kg-dry	20	8/27/2011 10:05:00 AM
Sodium	40,000	77,000	J	µg/Kg-dry	20	8/27/2011 1:55:15 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:05:00 AM
Vanadium	18,000	620		µg/Kg-dry	20	8/27/2011 10:05:00 AM
Zinc	44,000	7,700		µg/Kg-dry	20	8/27/2011 10:05:00 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	150	J	µg/Kg-dry	10	9/7/2011 7:19:49 PM
Silver	ND	92	U	µg/Kg-dry	10	9/7/2011 7:19:49 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	6.3	27	J	µg/Kg-dry	1	8/24/2011 11:46:09 AM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT3**~~
2-Methylnaphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
~~Acenaphthene~~	~~ND~~	~~900~~	~~UH~~	~~µg/Kg-dry~~	~~5~~	~~9/30/2011 6:29:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 11:50:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU07-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS				SW8270C	SW3550C	Analyst: MT
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(a)anthracene	41	900	JmH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(a)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(b)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(g,h,i)perylene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Benzo(k)fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Chrysene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Dibenzo (a,h) anthracene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Fluoranthene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Fluorene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Indeno(1,2,3-cd)pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Naphthalene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Phenanthrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Pyrene	ND	900	UH	µg/Kg-dry	5	9/30/2011 6:29:00 PM
Surr: 2-Fluorobiphenyl	87.4	45-105	H	%REC	5	9/30/2011 6:29:00 PM
Surr: Nitrobenzene-d5	86.4	35-100	H	%REC	5	9/30/2011 6:29:00 PM
Surr: Terphenyl-d14	93.2	30-125	H	%REC	5	9/30/2011 6:29:00 PM
PERCENT MOISTURE				D2216		Analyst: NK
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU09-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1221	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1232	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1242	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1248	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1254	ND	190	U	µg/Kg-dry	5	8/24/2011 6:57:35 PM
Aroclor 1260	470	190		µg/Kg-dry	5	8/24/2011 6:57:35 PM
Total PCBs	470	190		µg/Kg-dry	5	8/24/2011 6:57:35 PM
Surr: Decachlorobiphenyl	87.2	60-125		%REC	5	8/24/2011 6:57:35 PM
Surr: Tetrachloro-m-xylene	96.8	60-125		%REC	5	8/24/2011 6:57:35 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B** Analyst: **AV**		
Aluminum	5,600,000	150,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Arsenic	1,400	230		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Barium	22,000	3,800		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Beryllium	300	310	J	µg/Kg-dry	20	8/27/2011 9:54:00 AM
Cadmium	300	150		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Chromium	8,100	1,500		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Cobalt	2,800	760		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Copper	9,700	760		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Iron	11,000,000	610,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Lead	36,000	150		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Magnesium	1,600,000	76,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Manganese	180,000	15,000		µg/Kg-dry	400	8/27/2011 11:51:20 AM
Nickel	4,600	1,500		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Potassium	240,000	76,000		µg/Kg-dry	20	8/27/2011 1:51:35 PM
Selenium	650	760	J	µg/Kg-dry	20	8/27/2011 9:54:00 AM
Sodium	51,000	76,000	J	µg/Kg-dry	20	8/27/2011 1:51:35 PM
Thallium	370	310		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Vanadium	15,000	610		µg/Kg-dry	20	8/27/2011 9:54:00 AM
Zinc	37,000	7,600		µg/Kg-dry	20	8/27/2011 9:54:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU09-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	160		µg/Kg-dry	10	9/7/2011 7:16:41 PM
Silver	ND	95	U	µg/Kg-dry	10	9/7/2011 7:16:41 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	20	35	J	µg/Kg-dry	1	8/24/2011 11:37:17 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT-3**
2-Methylnaphthalene	11	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Acenaphthene	58	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Anthracene	91	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(a)anthracene	270	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(a)pyrene	240	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(b)fluoranthene	340	180	mH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(g,h,i)perylene	95	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Benzo(k)fluoranthene	110	180	JmH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Chrysene	280	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Dibenzo (a,h) anthracene	35	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Fluoranthene	580	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Fluorene	52	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Indeno(1,2,3-cd)pyrene	87	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Naphthalene	16	180	JH	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Phenanthrene	400	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Pyrene	480	180	H	µg/Kg-dry	1	9/30/2011 9:10:00 PM
Surr: 2-Fluorobiphenyl	74.4	45-105	H	%REC	1	9/30/2011 9:10:00 PM
Surr: Nitrobenzene-d5	76.4	35-100	H	%REC	1	9/30/2011 9:10:00 PM
Surr: Terphenyl-d14	87.4	30-125	H	%REC	1	9/30/2011 9:10:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU13-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
~~POLYCHLORINATED BIPHENYLS~~				~~SW8082~~	~~SW3550C~~	~~Analyst: MB~~
Aroclor 1016	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1221	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1232	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1242	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1248	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1254	ND	41	U	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Aroclor 1260	18	41	J	µg/Kg-dry	1	8/24/2011 7:46:01 PM
Total PCBs	18	41		µg/Kg-dry	1	8/24/2011 7:46:01 PM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/24/2011 7:46:01 PM
~~Surr: Tetrachloro-m-xylene~~	~~102~~	~~60-125~~		~~%REC~~	~~1~~	~~8/24/2011 7:46:01 PM~~
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,600,000	140,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Arsenic	1,300	210		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Barium	21,000	3,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Beryllium	220	280	J	µg/Kg-dry	20	8/27/2011 10:22:24 AM
Cadmium	250	140		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Calcium	810,000	140,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Chromium	8,600	1,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Cobalt	1,400	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Copper	6,200	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Iron	6,100,000	550,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Lead	27,000	140		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Magnesium	900,000	69,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Manganese	75,000	14,000		µg/Kg-dry	400	8/27/2011 12:15:21 PM
Nickel	5,300	1,400		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Potassium	260,000	69,000		µg/Kg-dry	20	8/27/2011 2:20:38 PM
Selenium	880	690		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Sodium	41,000	69,000	J	µg/Kg-dry	20	8/27/2011 2:20:38 PM
Thallium	ND	280	U	µg/Kg-dry	20	8/27/2011 10:22:24 AM
Vanadium	18,000	550		µg/Kg-dry	20	8/27/2011 10:22:24 AM
Zinc	25,000	6,900		µg/Kg-dry	20	8/27/2011 10:22:24 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU13-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	190	230	J	µg/Kg-dry	10	9/7/2011 7:29:28 PM
Silver	110	140	J	µg/Kg-dry	10	9/7/2011 7:29:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	38	32		µg/Kg-dry	1	8/24/2011 11:53:28 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	200	UH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Acenaphthene	16	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Acenaphthylene	20	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Anthracene	47	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(a)anthracene	200	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(a)pyrene	170	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(b)fluoranthene	240	200	mH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(g,h,i)perylene	100	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Benzo(k)fluoranthene	110	200	JmH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Chrysene	200	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Dibenzo (a,h) anthracene	32	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Fluoranthene	370	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Fluorene	19	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Indeno(1,2,3-cd)pyrene	100	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Naphthalene	ND	200	UH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Phenanthrene	190	200	JH	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Pyrene	300	200	H	µg/Kg-dry	1	9/30/2011 6:05:00 PM
Surr: 2-Fluorobiphenyl	81.6	45-105	H	%REC	1	9/30/2011 6:05:00 PM
Surr: Nitrobenzene-d5	84.0	35-100	H	%REC	1	9/30/2011 6:05:00 PM
Surr: Terphenyl-d14	87.1	30-125	H	%REC	1	9/30/2011 6:05:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	19	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 1:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU14-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,900,000	160,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Arsenic	1,900	230		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Barium	16,000	3,900		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Beryllium	380	310		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Cadmium	180	160		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Calcium	1,100,000	160,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Chromium	6,300	1,600		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Cobalt	2,500	780		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Copper	4,400	780		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Iron	11,000,000	630,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Lead	13,000	160		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Magnesium	1,300,000	78,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Manganese	150,000	16,000		µg/Kg-dry	400	8/27/2011 12:14:31 PM
Nickel	4,200	1,600		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Potassium	320,000	78,000		µg/Kg-dry	20	8/27/2011 2:19:49 PM
Selenium	700	780	J	µg/Kg-dry	20	8/27/2011 10:20:48 AM
Sodium	60,000	78,000	J	µg/Kg-dry	20	8/27/2011 2:19:49 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:20:48 AM
Vanadium	18,000	630		µg/Kg-dry	20	8/27/2011 10:20:48 AM
Zinc	23,000	7,800		µg/Kg-dry	20	8/27/2011 10:20:48 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	140	220	J	µg/Kg-dry	10	9/7/2011 7:28:42 PM
Silver	ND	130	U	µg/Kg-dry	10	9/7/2011 7:28:42 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.3	36	J	µg/Kg-dry	1	8/24/2011 1:37:39 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.4	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-018 **Matrix:** SOIL

Client Sample ID IOA-SS-EU16-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: MB
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/25/2011 1:00:59 AM
Aroclor 1260	300	39		µg/Kg-dry	1	8/25/2011 1:00:59 AM
Total PCBs	300	39		µg/Kg-dry	1	8/25/2011 1:00:59 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/25/2011 1:00:59 AM
Surr: Tetrachloro-m-xylene	103	60-125		%REC	1	8/25/2011 1:00:59 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A** **SW3050B**		Analyst: AV
METALS, ICP/MS						
Aluminum	10,000,000	160,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Arsenic	1,300	240		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Barium	21,000	4,100		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Beryllium	290	330	J	µg/Kg-dry	20	8/27/2011 10:48:40 AM
Cadmium	550	160		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Calcium	810,000	160,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Chromium	13,000	1,600		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Cobalt	2,800	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Copper	7,000	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Iron	9,900,000	650,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Lead	56,000	160		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Magnesium	1,700,000	82,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Manganese	160,000	16,000		µg/Kg-dry	400	8/27/2011 12:27:36 PM
Nickel	7,600	1,600		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Potassium	240,000	82,000		µg/Kg-dry	20	8/27/2011 2:31:27 PM
Selenium	980	820		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Sodium	49,000	82,000	J	µg/Kg-dry	20	8/27/2011 2:31:27 PM
Thallium	ND	330	U	µg/Kg-dry	20	8/27/2011 10:48:40 AM
Vanadium	25,000	650		µg/Kg-dry	20	8/27/2011 10:48:40 AM
Zinc	36,000	8,200		µg/Kg-dry	20	8/27/2011 10:48:40 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-018 **Matrix:** SOIL

Client Sample ID IOA-SS-EU16-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	150	180	J	µg/Kg-dry	10	9/7/2011 7:39:00 PM
Silver	60	110	J	µg/Kg-dry	10	9/7/2011 7:39:00 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	31	43	J	µg/Kg-dry	1	8/24/2011 12:11:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Acenaphthene	48	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Acenaphthylene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Anthracene	110	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(a)anthracene	410	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(a)pyrene	300	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(b)fluoranthene	420	960	JmH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(g,h,i)perylene	100	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Benzo(k)fluoranthene	190	960	JmH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Chrysene	410	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Dibenzo (a,h) anthracene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Fluoranthene	830	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Fluorene	60	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Indeno(1,2,3-cd)pyrene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Naphthalene	ND	960	UH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Phenanthrene	480	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Pyrene	640	960	JH	µg/Kg-dry	5	9/30/2011 8:01:00 PM
Surr: 2-Fluorobiphenyl	89.4	45-105	H	%REC	5	9/30/2011 8:01:00 PM
Surr: Nitrobenzene-d5	83.8	35-100	H	%REC	5	9/30/2011 8:01:00 PM
Surr: Terphenyl-d14	95.2	30-125	H	%REC	5	9/30/2011 8:01:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	17	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:10:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU17-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082 SW3550C** Analyst: **MB**		
Aroclor 1016	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1221	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1232	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1242	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1248	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1254	ND	370	U	µg/Kg-dry	10	8/24/2011 8:58:38 PM
Aroclor 1260	1,800	370		µg/Kg-dry	10	8/24/2011 8:58:38 PM
Total PCBs	1,800	370		µg/Kg-dry	10	8/24/2011 8:58:38 PM
Surr: Decachlorobiphenyl	83.7	60-125		%REC	10	8/24/2011 8:58:38 PM
Surr: Tetrachloro-m-xylene	73.1	60-125		%REC	10	8/24/2011 8:58:38 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A SW3050B** Analyst: **AV**		
METALS, ICP/MS						
Aluminum	6,100,000	140,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Arsenic	1,200	210		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Barium	21,000	3,500		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Beryllium	430	280		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Cadmium	570	140		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Calcium	1,100,000	140,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Chromium	12,000	1,400		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Cobalt	2,800	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Copper	8,300	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Iron	15,000,000	560,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Lead	69,000	140		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Magnesium	1,800,000	70,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Manganese	390,000	14,000		µg/Kg-dry	400	8/27/2011 12:16:10 PM
Nickel	6,900	1,400		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Potassium	290,000	70,000		µg/Kg-dry	20	8/27/2011 2:21:28 PM
Selenium	1,100	700		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Sodium	44,000	70,000	J	µg/Kg-dry	20	8/27/2011 2:21:28 PM
Thallium	ND	280	U	µg/Kg-dry	20	8/27/2011 10:24:00 AM
Vanadium	20,000	560		µg/Kg-dry	20	8/27/2011 10:24:00 AM
Zinc	70,000	7,000		µg/Kg-dry	20	8/27/2011 10:24:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:10:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU17-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	710	180		µg/Kg-dry	10	9/7/2011 7:30:14 PM
Silver	87	110	J	µg/Kg-dry	10	9/7/2011 7:30:14 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	11	38	J	µg/Kg-dry	1	8/24/2011 11:54:54 AM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Acenaphthene	22	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Acenaphthylene	9.7	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Anthracene	60	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(a)anthracene	200	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(a)pyrene	220	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(b)fluoranthene	340	180	mH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(g,h,i)perylene	130	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Benzo(k)fluoranthene	130	180	JmH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Chrysene	250	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Dibenzo (a,h) anthracene	30	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Fluoranthene	450	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Fluorene	25	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Indeno(1,2,3-cd)pyrene	120	180	JH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Phenanthrene	290	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Pyrene	400	180	H	µg/Kg-dry	1	9/23/2011 2:23:00 PM
Surr: 2-Fluorobiphenyl	84.1	45-105	H	%REC	1	9/23/2011 2:23:00 PM
Surr: Nitrobenzene-d5	87.0	35-100	H	%REC	1	9/23/2011 2:23:00 PM
Surr: Terphenyl-d14	90.1	30-125	H	%REC	1	9/23/2011 2:23:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 8:20:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-015 **Matrix:** SOIL

Client Sample ID IOA-SS-EU27-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
~~POLYCHLORINATED BIPHENYLS~~				~~SW8082~~	~~SW3550C~~	~~Analyst: MB~~
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Aroclor 1260	ND	36	U	µg/Kg-dry	1	8/24/2011 11:48:23 PM
Total PCBs	ND	36		µg/Kg-dry	1	8/24/2011 11:48:23 PM
Surr: Decachlorobiphenyl	71.4	60-125		%REC	1	8/24/2011 11:48:23 PM
~~Surr: Tetrachloro-m-xylene~~	~~90.0~~	~~60-125~~		~~%REC~~	~~1~~	~~8/24/2011 11:48:23 PM~~
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,100,000	150,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Arsenic	2,100	220		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Barium	19,000	3,700		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Beryllium	330	300		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Cadmium	180	150		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Calcium	870,000	150,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Chromium	9,400	1,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Cobalt	4,400	750		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Copper	7,100	750		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Iron	14,000,000	600,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Lead	25,000	150		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Magnesium	3,100,000	75,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Manganese	140,000	15,000		µg/Kg-dry	400	8/27/2011 12:18:40 PM
Nickel	16,000	1,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Potassium	330,000	75,000		µg/Kg-dry	20	8/27/2011 2:23:57 PM
Selenium	500	750	J	µg/Kg-dry	20	8/27/2011 10:28:48 AM
Sodium	37,000	75,000	J	µg/Kg-dry	20	8/27/2011 2:23:57 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:28:48 AM
Vanadium	33,000	600		µg/Kg-dry	20	8/27/2011 10:28:48 AM
Zinc	57,000	7,500		µg/Kg-dry	20	8/27/2011 10:28:48 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 8:20:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-015 **Matrix:** SOIL

Client Sample ID IOA-SS-EU27-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	260	250		µg/Kg-dry	10	9/7/2011 7:32:34 PM
Silver	ND	150	U	µg/Kg-dry	10	9/7/2011 7:32:34 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	75	38		µg/Kg-dry	1	8/24/2011 12:03:42 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	9.7	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-017 **Matrix:** SOIL

Client Sample ID IOA-SS-EU29-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082 SW3550C** Analyst: **MB**		
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 12:36:45 AM
Aroclor 1260	59	35		µg/Kg-dry	1	8/25/2011 12:36:45 AM
Total PCBs	59	35		µg/Kg-dry	1	8/25/2011 12:36:45 AM
Surr: Decachlorobiphenyl	96.9	60-125		%REC	1	8/25/2011 12:36:45 AM
Surr: Tetrachloro-m-xylene	93.4	60-125		%REC	1	8/25/2011 12:36:45 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A SW3050B** Analyst: **AV**		
Aluminum	7,800,000	180,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Arsenic	6,400	260		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Barium	18,000	4,400		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Beryllium	460	350		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Cadmium	240	180		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Calcium	480,000	180,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Chromium	14,000	1,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Cobalt	3,000	880		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Copper	4,200	880		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Iron	21,000,000	700,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Lead	20,000	180		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Magnesium	1,800,000	88,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Manganese	100,000	18,000		µg/Kg-dry	400	8/27/2011 12:26:46 PM
Nickel	7,700	1,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Potassium	480,000	88,000		µg/Kg-dry	20	8/27/2011 2:30:37 PM
Selenium	790	880	J	µg/Kg-dry	20	8/27/2011 10:47:03 AM
Sodium	38,000	88,000	J	µg/Kg-dry	20	8/27/2011 2:30:37 PM
Thallium	ND	350	U	µg/Kg-dry	20	8/27/2011 10:47:03 AM
Vanadium	39,000	700		µg/Kg-dry	20	8/27/2011 10:47:03 AM
Zinc	29,000	8,800		µg/Kg-dry	20	8/27/2011 10:47:03 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-017 **Matrix:** SOIL

Client Sample ID IOA-SS-EU29-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	230		µg/Kg-dry	10	9/7/2011 7:38:13 PM
Silver	ND	140	U	µg/Kg-dry	10	9/7/2011 7:38:13 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.3	36	J	µg/Kg-dry	1	8/24/2011 12:09:34 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	18	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Acenaphthene	330	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Acenaphthylene	13	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Anthracene	660	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(a)anthracene	1,700	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(a)pyrene	1,300	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(b)fluoranthene	2,000	170	EmH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(g,h,i)perylene	480	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Benzo(k)fluoranthene	800	170	mH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Chrysene	1,800	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Dibenzo (a,h) anthracene	150	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Fluoranthene	2,600	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Fluorene	250	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Indeno(1,2,3-cd)pyrene	480	170	H	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Naphthalene	19	170	JH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Phenanthrene	1,800	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Pyrene	2,900	170	EH	µg/Kg-dry	1	9/23/2011 4:21:00 PM
Surr: 2-Fluorobiphenyl	84.2	45-105	H	%REC	1	9/23/2011 4:21:00 PM
Surr: Nitrobenzene-d5	86.4	35-100	H	%REC	1	9/23/2011 4:21:00 PM
Surr: Terphenyl-d14	100	30-125	H	%REC	1	9/23/2011 4:21:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.4	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108425**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-019 **Matrix:** SOIL

Client Sample ID IOA-SS-EU30-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/25/2011 1:25:11 AM
Aroclor 1260	86	36		µg/Kg-dry	1	8/25/2011 1:25:11 AM
Total PCBs	86	36		µg/Kg-dry	1	8/25/2011 1:25:11 AM
Surr: Decachlorobiphenyl	81.5	60-125		%REC	1	8/25/2011 1:25:11 AM
Surr: Tetrachloro-m-xylene	108	60-125		%REC	1	8/25/2011 1:25:11 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	13,000,000	180,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Arsenic	1,500	270		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Barium	17,000	4,400		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Beryllium	420	360		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Cadmium	150	180	J	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Chromium	17,000	1,800		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Cobalt	3,900	890		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Copper	5,700	890		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Iron	16,000,000	710,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Lead	9,300	180		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Magnesium	3,600,000	89,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Manganese	200,000	18,000		µg/Kg-dry	400	8/27/2011 12:28:27 PM
Nickel	11,000	1,800		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Potassium	230,000	89,000		µg/Kg-dry	20	8/27/2011 2:32:18 PM
Selenium	850	890	J	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Sodium	46,000	89,000	J	µg/Kg-dry	20	8/27/2011 2:32:18 PM
Thallium	ND	360	U	µg/Kg-dry	20	8/27/2011 10:50:17 AM
Vanadium	21,000	710		µg/Kg-dry	20	8/27/2011 10:50:17 AM
Zinc	34,000	8,900		µg/Kg-dry	20	8/27/2011 10:50:17 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 10:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-019 **Matrix:** SOIL

Client Sample ID IOA-SS-EU30-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	240	J	µg/Kg-dry	10	9/7/2011 7:39:47 PM
Silver	ND	140	U	µg/Kg-dry	10	9/7/2011 7:39:47 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	19	33	J	µg/Kg-dry	1	8/24/2011 12:12:32 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS**~~ **SEMI-VOLATILE ORGANIC COMPOUNDS**				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Acenaphthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Acenaphthylene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Anthracene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(a)anthracene	40	880	JH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(a)pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(b)fluoranthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(g,h,i)perylene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Benzo(k)fluoranthene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Chrysene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Dibenzo (a,h) anthracene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Fluoranthene	39	880	JH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Fluorene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Indeno(1,2,3-cd)pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Naphthalene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Phenanthrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Pyrene	ND	880	UH	µg/Kg-dry	5	9/30/2011 7:38:00 PM
Surr: 2-Fluorobiphenyl	87.4	45-105	H	%REC	5	9/30/2011 7:38:00 PM
Surr: Nitrobenzene-d5	85.0	35-100	H	%REC	5	9/30/2011 7:38:00 PM
~~Surr: Terphenyl-d14~~	~~110~~	~~30-125~~	~~H~~	~~%REC~~	~~5~~	~~9/30/2011 7:38:00 PM~~
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108425**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU31-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/24/2011 11:00:00 PM
Aroclor 1260	150	38		µg/Kg-dry	1	8/24/2011 11:00:00 PM
Total PCBs	150	38		µg/Kg-dry	1	8/24/2011 11:00:00 PM
Surr: Decachlorobiphenyl	72.5	60-125		%REC	1	8/24/2011 11:00:00 PM
Surr: Tetrachloro-m-xylene	93.8	60-125		%REC	1	8/24/2011 11:00:00 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	7,000,000	160,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Arsenic	2,200	240		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Barium	17,000	3,900		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Beryllium	410	310		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Cadmium	270	160		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Calcium	1,100,000	160,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Chromium	10,000	1,600		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Cobalt	4,100	790		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Copper	9,200	790		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Iron	18,000,000	630,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Lead	10,000	160		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Magnesium	2,600,000	79,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Manganese	440,000	16,000		µg/Kg-dry	400	8/27/2011 12:17:00 PM
Nickel	9,000	1,600		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Potassium	440,000	79,000		µg/Kg-dry	20	8/27/2011 2:22:17 PM
Selenium	480	790	J	µg/Kg-dry	20	8/27/2011 10:25:36 AM
Sodium	59,000	79,000	J	µg/Kg-dry	20	8/27/2011 2:22:17 PM
Thallium	ND	310	U	µg/Kg-dry	20	8/27/2011 10:25:36 AM
Vanadium	17,000	630		µg/Kg-dry	20	8/27/2011 10:25:36 AM
Zinc	36,000	7,900		µg/Kg-dry	20	8/27/2011 10:25:36 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 9:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU31-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	92	150	J	µg/Kg-dry	10	9/7/2011 7:31:01 PM
Silver	ND	89	U	µg/Kg-dry	10	9/7/2011 7:31:01 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.4	39	J	µg/Kg-dry	1	8/24/2011 11:56:20 AM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: MT3~~
2-Methylnaphthalene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Acenaphthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Acenaphthylene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(a)anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(a)pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(b)fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(g,h,i)perylene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Benzo(k)fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Chrysene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Dibenzo (a,h) anthracene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Fluoranthene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Fluorene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Naphthalene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Phenanthrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Pyrene	ND	910	UH	µg/Kg-dry	5	9/23/2011 3:10:00 PM
Surr: 2-Fluorobiphenyl	90.8	45-105	H	%REC	5	9/23/2011 3:10:00 PM
Surr: Nitrobenzene-d5	83.2	35-100	H	%REC	5	9/23/2011 3:10:00 PM
~~Surr: Terphenyl-d14~~	~~110~~	~~30-125~~	~~H~~	~~%REC~~	~~5~~	~~9/23/2011 3:10:00 PM~~
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	12	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 8:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU40-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1221	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1232	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1242	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1248	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1254	ND	42	U	µg/Kg-dry	1	8/24/2011 11:24:12 PM
Aroclor 1260	46	42		µg/Kg-dry	1	8/24/2011 11:24:12 PM
Total PCBs	46	42		µg/Kg-dry	1	8/24/2011 11:24:12 PM
Surr: Decachlorobiphenyl	114	60-125		%REC	1	8/24/2011 11:24:12 PM
Surr: Tetrachloro-m-xylene	92.6	60-125		%REC	1	8/24/2011 11:24:12 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	10,000,000	170,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Arsenic	5,300	250		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Barium	39,000	4,200		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Beryllium	400	330		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Cadmium	420	170		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Calcium	1,400,000	170,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Chromium	15,000	1,700		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Cobalt	3,500	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Copper	15,000	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Iron	16,000,000	670,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Lead	100,000	170		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Magnesium	1,900,000	83,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Manganese	210,000	17,000		µg/Kg-dry	400	8/27/2011 12:17:50 PM
Nickel	9,200	1,700		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Potassium	290,000	83,000		µg/Kg-dry	20	8/27/2011 2:23:07 PM
Selenium	960	830		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Sodium	58,000	83,000	J	µg/Kg-dry	20	8/27/2011 2:23:07 PM
Thallium	ND	330	U	µg/Kg-dry	20	8/27/2011 10:27:12 AM
Vanadium	25,000	670		µg/Kg-dry	20	8/27/2011 10:27:12 AM
Zinc	78,000	8,300		µg/Kg-dry	20	8/27/2011 10:27:12 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 8:30:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU40-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	350	210		µg/Kg-dry	10	9/7/2011 7:31:47 PM
Silver	390	120		µg/Kg-dry	10	9/7/2011 7:31:47 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	150	38		µg/Kg-dry	1	8/24/2011 12:02:14 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	210	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Acenaphthene	1,400	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Acenaphthylene	59	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Anthracene	2,200	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(a)anthracene	6,300	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(a)pyrene	5,600	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(b)fluoranthene	7,400	1,000	mH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(g,h,i)perylene	2,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Benzo(k)fluoranthene	3,200	1,000	mH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Chrysene	6,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Dibenzo (a,h) anthracene	700	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Fluoranthene	10,000	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Fluorene	1,200	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Indeno(1,2,3-cd)pyrene	2,600	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Naphthalene	700	1,000	JH	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Phenanthrene	8,500	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Pyrene	11,000	1,000	H	µg/Kg-dry	5	9/23/2011 3:33:00 PM
Surr: 2-Fluorobiphenyl	75.4	45-105	H	%REC	5	9/23/2011 3:33:00 PM
Surr: Nitrobenzene-d5	69.8	35-100	H	%REC	5	9/23/2011 3:33:00 PM
Surr: Terphenyl-d14	98.8	30-125	H	%REC	5	9/23/2011 3:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	22	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-020 **Matrix:** SOIL

Client Sample ID IOA-SS-EU41-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
~~POLYCHLORINATED BIPHENYLS~~				~~SW8082~~	~~SW3550C~~	~~Analyst: MB~~
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/25/2011 1:49:21 AM
Total PCBs	ND	37		µg/Kg-dry	1	8/25/2011 1:49:21 AM
Surr: Decachlorobiphenyl	91.4	60-125		%REC	1	8/25/2011 1:49:21 AM
~~Surr: Tetrachloro-m-xylene~~	~~90.0~~	~~60-125~~		~~%REC~~	~~1~~	~~8/25/2011 1:49:21 AM~~
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	9,200,000	150,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Arsenic	750	230		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Barium	15,000	3,800		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Beryllium	270	300	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Cadmium	100	150	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Calcium	750,000	150,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Chromium	10,000	1,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Cobalt	2,600	750		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Copper	3,400	750		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Iron	11,000,000	600,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Lead	7,100	150		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Magnesium	2,000,000	75,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Manganese	130,000	15,000		µg/Kg-dry	400	8/27/2011 12:29:18 PM
Nickel	6,500	1,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Potassium	320,000	75,000		µg/Kg-dry	20	8/27/2011 2:33:09 PM
Selenium	600	750	J	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Sodium	51,000	75,000	J	µg/Kg-dry	20	8/27/2011 2:33:09 PM
Thallium	ND	300	U	µg/Kg-dry	20	8/27/2011 10:51:54 AM
Vanadium	16,000	600		µg/Kg-dry	20	8/27/2011 10:51:54 AM
Zinc	23,000	7,500		µg/Kg-dry	20	8/27/2011 10:51:54 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108425

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108425-020 **Matrix:** SOIL

Client Sample ID IOA-SS-EU41-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	70	200	J	µg/Kg-dry	10	9/7/2011 7:40:35 PM
Silver	ND	120	U	µg/Kg-dry	10	9/7/2011 7:40:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	11	31	J	µg/Kg-dry	1	8/24/2011 12:14:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Acenaphthene	10	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Anthracene	24	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(a)anthracene	67	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(a)pyrene	50	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(b)fluoranthene	80	180	JmH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(g,h,i)perylene	20	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Benzo(k)fluoranthene	32	180	JmH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Chrysene	73	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Fluoranthene	160	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Phenanthrene	91	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Pyrene	140	180	JH	µg/Kg-dry	1	9/23/2011 4:44:00 PM
Surr: 2-Fluorobiphenyl	87.6	45-105	H	%REC	1	9/23/2011 4:44:00 PM
Surr: Nitrobenzene-d5	90.9	35-100	H	%REC	1	9/23/2011 4:44:00 PM
Surr: Terphenyl-d14	101	30-125	H	%REC	1	9/23/2011 4:44:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/15/2011 5:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

APPENDIX C
REGION I WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name South Weymouth
Reference No. _____

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name RTI
Case/Project No. _____
SDG No. 1108 425
No. of Samples/Matrix 20 soil

SOW/Method No. see validation letter
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. _____

Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____
PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc., that received partial Tier III validation.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation and Technical Holding Times
- ICP-MS Tune
- Calibrations
- Blanks
- ICP-AES Interference Check Sample (ICS)
- ICP-MS Interference Check Sample (ICS)
- ICP-MS Internal Standards
- Matrix Spikes
- Laboratory Duplicate Samples
- Field Duplicates
- ICP Serial Dilutions
- Sensitivity Check
- Performance Evaluation Samples/Accuracy Check
- Analyte Quantitation and Reported Quantitation Limits
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with analyte is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Analyte not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
BB, EB - Analyte detected in aqueous bottle blank or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Terri Solomon Company Name TetraTech Phone Number _____

Date Validation Started 12-2-2011 Date Validation Completed 12-6-2011

EPA-NE
Data Validation Worksheet Cover Page - Page 2

Check if all criteria are met and no hard copy worksheet is provided. Indicate NA if worksheet is not applicable to the analytical method. Note: there is no standard worksheet for System Performance; however, the validator must document all system performance issues in the Data Validation Memorandum.

INORG Worksheets:

INORG	COMPLETE SDG FILE (CSF) AUDIT	____
INORG-I	PRESERVATION AND TECHNICAL HOLDING TIMES	____
INORG-II	ICP-MS TUNE	____
INORG-III-A/B	CALIBRATIONS	____
INORG-IV-A/B	BLANKS	____
INORG-IV-C.1	BLANKS	____
INORG-IV-C.2	BLANKS	____
INORG-V-A	ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB	____
INORG-V-B.1	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	____
INORG-V-B.2	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	____
INORG-VI-A	ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB	____
INORG-VI-B	ICP-MS INTERFERENCE CHECK SAMPLE - ICSA	____
INORG-VII	ICP-MS INTERNAL STANDARDS	____
INORG-VIII	MATRIX SPIKES	____
INORG-IX	LABORATORY DUPLICATE SAMPLES	____
INORG-X	FIELD DUPLICATES	____
INORG-XI	ICP SERIAL DILUTIONS	____
INORG-XII-A/B	SENSITIVITY CHECK	____
INORG-XIII-A	PE SAMPLES/ACCURACY CHECK- LCS	____
INORG-XIII-B	PE SAMPLES/ACCURACY CHECK- PE RESULTS	____
INORG-XIV	ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS	____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	____

I certify that all criteria were met for the worksheets checked above.

Signature: Terri Solomon Name: Terri Solomon

Date: 12-6-2011

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Part I - Data Validation Manual, Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
   a. Narrative
   b. Table I-Qualifier Recommendation Summary Table
   c. Table II-Overall Evaluation of Data
   d. Data Summary Tables
3. Standard Data Validation Worksheets
   a. Manual
   b. Automated Data Review Reports
4. Support Documentation
   a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
   b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
   c. Copies of Telephone Logs/Communication Forms for:
      - RSCC communications
      - Requests for laboratory data resubmissions/clarifications
      - Communications with samplers resolving sampling problems
      - Communications with PO/DV Chemist/Lead Chemist to report contractually-deficient data for rejection/reduced payment
      - Communications with EPA Site Manager concerning possible data rejection
      - EPA Site Manager authorization for alternate DV tier
   d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
   e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
   f. Copies of field sampling notes and/or field report supplied by field sampler
   g. Copies of EPA-approved amendments to QAPP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

see validation letter

Site:_____ Case:_____ SDG:_____

INORGANICS					
DQO (List all DQOs)	Sampling and/or Analytical Method Appropriate? (Yes or No)	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: Anne Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG

COMPLETE SDG FILE (CSF) AUDIT N/A

Inorganic Parameters:_____

Missing Information	Date Lab Contacted	Date Received

Validator: Ken Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-I

see validation letter

I. PRESERVATION AND HOLDING TIMES

Circle sample numbers with exceeded technical holding times or omitted preservation.
Circle all exceeded technical holding times.

Sample No.	Matrix	Pres. Code		Date Sampled	Metals		Hg		CN		Action
		Metals	CN		Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	

Preservation Code:
1. Cool (≤ 6°C)
2. pH < 2 with HNO_3
3. pH > 12 with NaOH
4. Room Temperature
5. Freeze
6. Reducing agent (for oxidants)
7. Treated for sulfides
8. Other - _____

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Sampler:_____ Company:_____ Contacted: Y N Date:_____

Validator: Allan Solomon

Date: 12-6-2011

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EPA-NE - Data Validation Worksheet
INORG-II

II. ICP-MS TUNE

List all Tunes that are outside method QC acceptance criteria.

see validation letter

Method:_____

Method QC acceptance criteria for mass calibration:_____

Method QC acceptance criteria for resolution check/peak width:_____ at_____% peak height.

Method QC acceptance criteria for % RSD:_____

Analysis Date and Time	Analyte	Mass Calibration			Mass Resolution		% RSD of Absolute Signals	Analyte/Samples Affected	Action
		True Mass (amu)	Measured Mass (amu)	Absolute Difference of Masses (amu)	Peak Width (amu)	% Peak Height			

Comments:

Validator: [signature] Salomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-III-A/B/C

see validation letter

III. CALIBRATIONS

A. Instrument Calibration - List all calibration correlation coefficients that are outside the method QC acceptance criteria.
Calibration correlation QC acceptance criteria: _____ Calibration Type: _____

Date/Time	Instr.	Analyte	Corr. Coef.	Samples Affected	Action

B. Initial and Continuing Calibration Verifications - List all ICV and CCV analyte recoveries that are outside the method QC acceptance criteria.
ICV method QC acceptance criteria: _____ CCV method QC acceptance criteria: _____

Date	Instr.	Analyte	ICV/CCV #	% R	Samples Affected	Action

C. Quantitation Limit Check Standard - List all QL Check Standard analytes that are outside method QC acceptance criteria.
QL Check Standard method QC acceptance criteria: _____

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action

Comments: _____

Validator: Helen Solomon Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-A/B

see validation letter

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: _____ Company: _____ Contacted: Y N Date: _____

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency? Y N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria? Y N

Comments: _____

Validator: Karen Solomon Date: 12-6-2011

EPA-NE - Data Validation Worksheet
INORG-IV-C.1
IV. BLANKS

C.1 Blank Contamination Worksheet

see validation letter

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Calcium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury															
Nickel															
Potassium															
Selenium															
Silver															
Sodium															
Thallium															
Vanadium															
Zinc															
Cyanide															

Validator: Ann Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-C.2

See validation letter

IV. BLANKS

C.2 Blank Actions - List the maximum concentrations of each analyte among all blanks associated with each sample.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units)	Blank Action Level (units)	Sample QL	Samples Affected	Action
Comments:							

Validator: Nancy Solomon

Date: 12-6-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-A

N/A

V. A. ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB

1. List all analytes in the ICSAB that are outside ICSAB percent recovery criteria.

Date	Analyte	%R	Conc. of Interferents Observed in ICSAB (ug/L)				Samples Affected	Action
			Al	Ca	Fe	Mg		
Comments:								

Validator: Helen Solomon

Date: 12-6-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-B.1

N/A

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	

Comments:

Validator: Steve Solomon

Date: 12-6-2011

EPA NE - Data Validation Worksheet
INORG-V-B.2

N/A

V. B.2 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

2. List all affected sample results.

Affected Sample	Interferent	Conc. in Sample (ug/L)	Analyte	Conc. in Sample (ug/L)	Estimated Interference in Sample (ug/L)	Action

Comments:

Validator: [signature]

Date: 12-6-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-A

see validation letter

VI. A. ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB

List all analytes that are outside ICSAB criteria of 80-120% R.

Date	Analyte	%R	Samples Affected	Action
Comments:				

Validator: Kim Solomon

Date: 12-6-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-B

VI. B. ICP-MS INTERFERENCE CHECK SAMPLE - ICSA

see validation letter

List all analytes that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV ± 2xMDL	Samples Affected	Action
Comments:							

Validator: Melissa Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-VII

VII. ICP-MS INTERNAL STANDARDS

See validation letter

List all internal standards that are outside method QC acceptance criteria.

IS method QC acceptance criteria: _____

Sample Number	Date and Time Analyzed	IS, amu	% RI	Analytes Affected (amu)	Action
Comments:					

Validator: Terri Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-VIII

VIII. MATRIX SPIKES - List all matrix spike analytes that are outside method QC acceptance criteria.

See Validation letter

Use a separate worksheet for each matrix spike sample.

Sample No.: _____ Matrix: _____

Method	Analyte	Spiked Sample Result	Sample Result	Amount of Spike Added	MS % Recovery	Method QC Limits % Recovery	Post-Digest Spike % Recovery	Action

Comments:

Validator: Kim Solomon

Date: 12-6-2011

EPA-NE - Data Validation Worksheet
INORG-IX

N/A

IX. LABORATORY DUPLICATE SAMPLES - List all analytes that are outside method QC acceptance criteria for the specific matrix.

Use a separate worksheet for each laboratory duplicate sample.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Laboratory duplicate sample method QC acceptance criteria:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the field duplicate sample data indicate acceptable field precision? Y N

Comments:_____

Validator: Kara Salerno

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-X

X. FIELD DUPLICATES - List all field duplicate analytes that are outside criteria.

see validation letter

Use a separate worksheet for each field duplicate pair.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the laboratory duplicate sample data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for contact and resolution obtained: _____

Validator: Kerri Solomon Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-XI

XI. ICP SERIAL DILUTIONS

see validation letter

Use a separate worksheet for each serial dilution sample.

Sample No.:_____ Matrix:_____ Method:_____

List all serial dilution analytes that are outside method QC acceptance criteria.

% Difference method QC acceptance criteria: _____
Minimum concentration required to apply the % D criteria (e.g., 50x MDL): _____

Analyte	MDL	Min. Conc. Required	Sample Result	Serial Dilution Sample Result (corrected for dilution)	% D	Action

Comments:

Validator: Kim Solomon Date: 12-6-2011

EPA-NE - Data Validation Worksheet
INORG-XII-A/B

see validation letter

XII. SENSITIVITY CHECK

A. Method Detection Limit Study - List all analytes that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each analyte and matrix of interest? **Y N**
- Were samples analyzed within one year of the MDL study and on the same instrument? **Y N**

Matrix	Analyte	MDL	MDL > QL	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

B. Laboratory Fortified Blank - List all LFB analytes that are outside the LFB criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? **Y N**
- Does the LFB contain all target analytes at their QLs? **Y N**

Matrix	Method	Analyte	% R	Method QC Limits % R	Samples Affected	Action

Comments: _____

Validator: Helen Selemon

Date: 12-6-2011

EPA-NE - Data Validation Worksheet
INORG-XIII-A

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

See validation letter

A. Laboratory Control Samples - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Are more than one-half of the LCS analytes within criteria for each parameter and method? **Y** **N**

Date Prepared	Date Analyzed	Parameter/ Method	Matrix	Analyte	% Recovery (or Observed Conc.)	Method QC Acceptance Criteria	Samples Affected	Action

Comments:

Validator: Helen Solomon

Date: 12-6-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-XIII-B

N/A

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

B. Performance Evaluation Results - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Indicate the source of the PES: Region 1 EPA PES Non-EPA PES

Are more than one-half of the PES analytes within criteria for each parameter and method? **Y** **N**

PE Sample Number	Ampule Number	Parameter/ Method	Type of PES	Matrix	Analyte	Conc.	PES Score*	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High, Action Low, Analyte Missed, Contaminant.
For Non-EPA PESs indicate the Non-EPA PES Score: PES Analyte Missed; PES Analyte Contaminant; PES Analyte Hit (% Recovery Limits).

Comments:_____

Validator: Hew Solomon

Date: 12-6-2014

EPA-NE - Data Validation Worksheet
INORG-XIV

N/A

XIV. ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per analytical method. (Note: Although Section XIV, C.2.a, requires that one calculation for each method in each sample be performed, the validator is only required to reproduce an example, for each method, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y** **N**

- If no, were any steps employed to address the high moisture content? _____
- Indicate the action and list the affected sample nos.: _____

Method		Calculation
ICP-AES		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
ICP-MS		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
Mercury		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		
Cyanide		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		

Validator: Steven Solomon

Date: 12-6-2011

APPENDIX D
SUPPORT DOCUMENTATION

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108425

CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/11/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 20 soil samples.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample extracts for PAH analyses were analyzed beyond the holding time.

Samples 1108425-002, 004, 005, 0006, 013, 018 and 019 were analyzed at a dilution due to oily appearing extract - reporting limits elevated.

Analytical Comments for METHOD SW_8270S, SAMPLE 1108425-017A, Batch ID 23195: Some concentrations reported are above the calibration range. Extract was consumed, unable to perform additional analysis. Values reported and flagged as E are considered estimated results.

QUALITY CONTROL:

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Continuing calibration verification standard (CCV), SVOC3-9/23/11: Result for Acenaphthylene marginally exceeded the 20% criteria.

Surrogate recoveries were within control limits except as noted below:

Sample ID	2-Fluorobiphenyl	Nitrobenzene-d5	Terphenyl-d14
1108425-029AMSD	111%	101%	134%

Batch ID 23195:

- Sample ID 1108425-029AMS recoveries exceeded control limits for 2-Methylnaphthalene (105.5%), Acenaphthene (111%), Acenaphthylene (107%), Anthracene (113%), Benzo(a)pyrene (126%), Benzo(k)fluoranthene (128%), Chrysene (115%), Fluoranthene (116%), Fluorene (114%), Naphthalene (110%) and Phenanthrene (115%).
- Sample ID 1108425-029AMSD recoveries exceeded control limits for 2-Methylnaphthalene (111%), Acenaphthene (23%), Acenaphthylene (120%), Anthracene (129%), Benzo(a)anthracene (126%), Benzo(b)fluoranthene (122%), Benzo(k)fluoranthene (149%), Chrysene (132%), Fluoranthene (132%), Fluorene (131%), Phenanthrene (133%) and Pyrene (141%).

Batch ID 23237:

- LCS-23237 recovery slightly elevated for Benzo(a)anthracene (110.05%).
- Sample ID 1108425-007AMSD recoveries and RPD results exceeded control limits for Benzo(a)anthracene (128%), Benzo(a)pyrene (115%), Benzo(b)fluoranthene (128%), Chrysene (113%), Fluoranthene (137%, RPD 38.2%), Phenanthrene (140%, RPD 47.0%), Pyrene (131%, RPD 33.2%),

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits except as noted below:

Sample ID	Decachlorobiphenyl
1108425-002	141%

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
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Project Manager: Ms. Phoebe Call
Workorder: 1108425

CASE NARRATIVE

Batch ID 23324:

- Sample ID 1108425-007CMS recoveries exceeded control limits for Lead (126%) and Manganese (203%).
- Analytical Comments for METHOD SW_6020S, SAMPLE 1108425-007CMS and MSD, Batch ID 23324: Spike recoveries for Aluminum, Calcium, Iron and Magnesium were affected by elevated analyte concentrations.

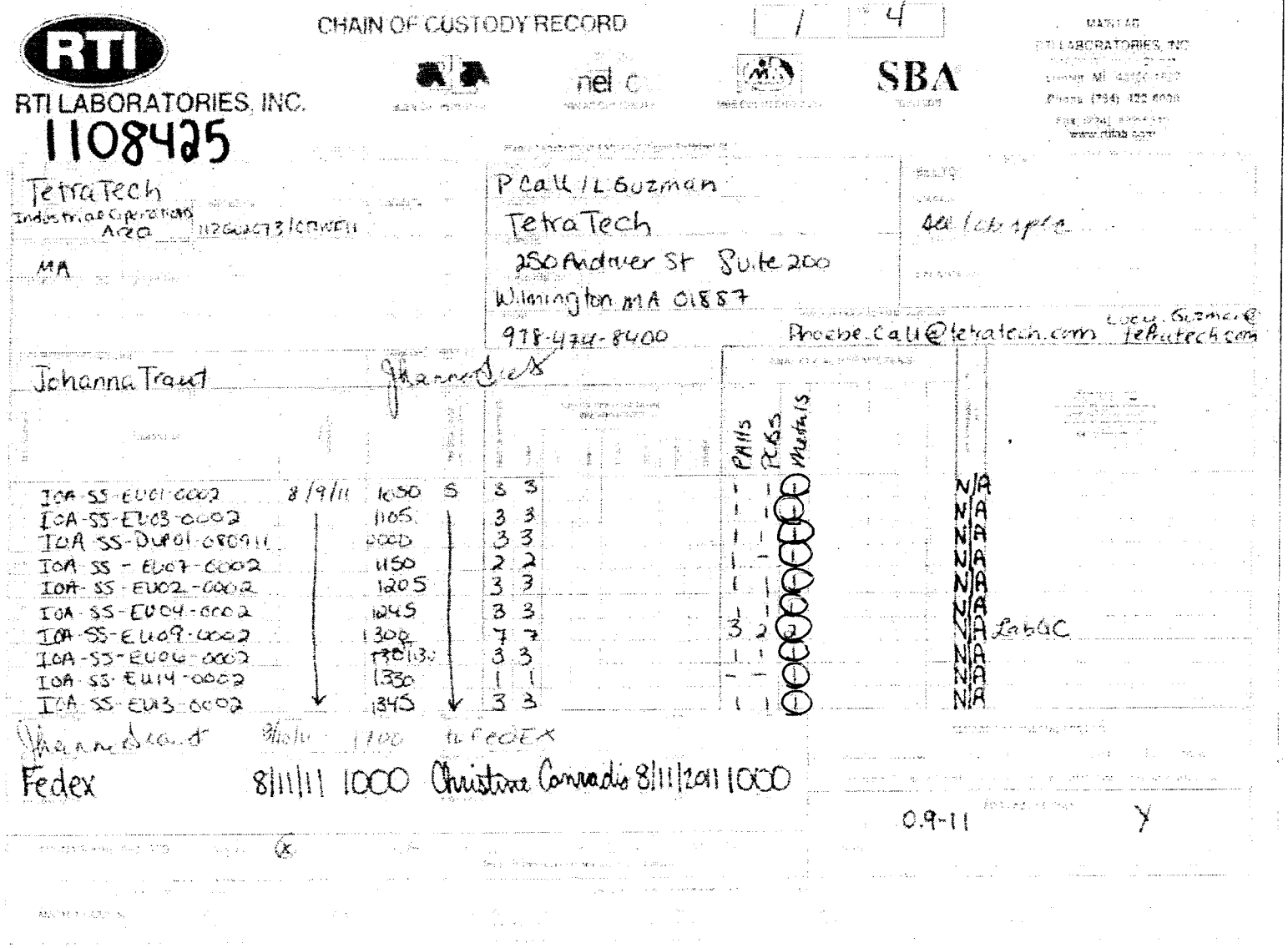
Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: _____ Date: 11/17/2011
Charles O'Bryan, Director, Quality Management



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

1108425

TetraTech
Industrial Operations
Area
MA

PCall / LGuzman
TetraTech
250 Andover St Suite 200
Wilmington MA 01887
978-474-8400
Phoebe.Call@tetratech.com Lucy.Guzman@tetratech.com

Johanna Traut

IOA-SS-EU01-0002	8/9/11	1050	S	3	3			N/A
IOA-SS-EU03-0002		1105		3	3			N/A
IOA-SS-Dup01-080911		0000		3	3			N/A
IOA-SS-EU07-0002		1150		2	2			N/A
IOA-SS-EU02-0002		1205		3	3			N/A
IOA-SS-EU04-0002		1245		3	3			N/A
IOA-SS-EU09-0002		1300		7	7	3	2	N/A LabQC
IOA-SS-EU06-0002		1320		3	3			N/A
IOA-SS-EU14-0002		1330		1	1			N/A
IOA-SS-EU13-0002		1345		3	3			N/A

PAHs PCBs Metals

Fedex 8/11/11 1000 Christine Conrad 8/11/2011 1000

0.9-11 Y

RTI

RTI LABORATORIES, INC.

1108425

CHAIN OF CUSTODY RECORD

2 4

SBA

RTI LABORATORIES, INC
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Tetra Tech NUS

112G02073 / CTO WE

MA

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Dee labs pass

Phoebe.call@tetratech.com

Johanna Trout (774-122-0409)

#	Sample	Date	Time				PAHs	PCBs	Metals	
11	IOA SS EU17-0002	8/10/11	0910	5	3	3	1	1	O	NA
12	IOA SS EU10-0002	↓	1000	↓	1	1	1	1	1	NA
13	IOA SS EU31-0002		0900		3	3	1	1	O	NA
14	IOA SS EU42-0002		0830		3	3	1	1	O	NA
15	IOA SS EU27-0002		0820		2	2	1	1	O	NA
16	IOA SS DUP02-081011		0000		3	3	1	1	O	NA
17	IOA SS EU29-0002		1015		3	3	1	1	O	NA
18	IOA SS EU10-0002		1005		3	3	1	1	O	NA
19	IOA SS EU30-0002		1045		3	3	1	1	O	NA
20	IOA SS EU41-0002	↓	1100	✓	3	3	1	1	O	NA

fine level = 0.5 in soil

Johanna Trout 8/10/11 1700 to FedEx ~~8/11/11 1000~~ CC

FedEx 8/11/11 1000 Christine Conradi 8/11/11 1000

0.9-11 Y

X

www.ammara.com

HOLDTIME

PROJ_NO 02073

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	HG	MG/KG	IOA-SS-EU09-0002	1108425-007C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU29-0002	1108425-017C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU14-0002	1108425-009A	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU27-0002	1108425-015B	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU03-0002	1108425-002C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU07-0002	1108425-004B	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU30-0002	1108425-019C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU17-0002	1108425-011C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU06-0002	1108425-008C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU31-0002	1108425-013C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU04-0002	1108425-006C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-DUP02-081011	1108425-016C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-DUP01-080911	1108425-003C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU40-0002	1108425-014C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU13-0002	1108425-010C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU16-0002	1108425-018C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	HG	MG/KG	IOA-SS-EU01-0002	1108425-001C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	HG	MG/KG	IOA-SS-EU41-0002	1108425-020C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108425	HG	MG/KG	IOA-SS-EU02-0002	1108425-005C	NM	08/09/2011	08/23/2011	08/24/2011	14	1	15
1108425	M	MG/KG	IOA-SS-EU06-0002	1108425-008C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU06-0002DL	1108425-008C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU13-0002DL	1108425-010C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU13-0002	1108425-010C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU13-0002	1108425-010C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU07-0002	1108425-004B	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU07-0002DL	1108425-004B	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU09-0002DL	1108425-007C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU09-0002	1108425-007C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU09-0002	1108425-007C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU07-0002	1108425-004B	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU02-0002	1108425-005C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-DUP01-080911	1108425-003C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-DUP01-080911	1108425-003C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-DUP01-080911DL	1108425-003C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-DUP02-081011	1108425-016C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	M	MG/KG	IOA-SS-DUP02-081011	1108425-016C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-DUP02-081011DL	1108425-016C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU01-0002	1108425-001C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU04-0002	1108425-006C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU01-0002DL	1108425-001C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU06-0002	1108425-008C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU02-0002	1108425-005C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU02-0002DL	1108425-005C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU03-0002	1108425-002C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU41-0002DL	1108425-020C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU03-0002DL	1108425-002C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU04-0002	1108425-006C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU04-0002DL	1108425-006C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU01-0002	1108425-001C	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU31-0002	1108425-013C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU27-0002	1108425-015B	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU27-0002DL	1108425-015B	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU29-0002	1108425-017C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU29-0002	1108425-017C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	M	MG/KG	IOA-SS-EU29-0002DL	1108425-017C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU30-0002	1108425-019C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU30-0002	1108425-019C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU27-0002	1108425-015B	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU31-0002	1108425-013C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU41-0002	1108425-020C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU31-0002DL	1108425-013C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU40-0002	1108425-014C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU40-0002	1108425-014C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU40-0002DL	1108425-014C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU14-0002	1108425-009A	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU41-0002	1108425-020C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU03-0002	1108425-002C	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18
1108425	M	MG/KG	IOA-SS-EU30-0002DL	1108425-019C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU16-0002	1108425-018C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU17-0002DL	1108425-011C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU17-0002	1108425-011C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU14-0002	1108425-009A	NM	08/09/2011	08/23/2011	09/07/2011	14	15	29
1108425	M	MG/KG	IOA-SS-EU14-0002DL	1108425-009A	NM	08/09/2011	08/23/2011	08/27/2011	14	4	18

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	M	MG/KG	IOA-SS-EU17-0002	1108425-011C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	M	MG/KG	IOA-SS-EU16-0002	1108425-018C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108425	M	MG/KG	IOA-SS-EU16-0002DL	1108425-018C	NM	08/10/2011	08/23/2011	08/27/2011	13	4	17
1108425	TS	%	IOA-SS-EU31-0002	1108425-013C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU10-0002	1108425-012A	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU41-0002	1108425-020C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU13-0002	1108425-010C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU14-0002	1108425-009A	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU16-0002	1108425-018C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU27-0002	1108425-015B	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU09-0002	1108425-007C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU29-0002	1108425-017C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU30-0002	1108425-019C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU40-0002	1108425-014C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU17-0002	1108425-011C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU02-0002	1108425-005C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU07-0002	1108425-004B	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU06-0002	1108425-008C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-DUP01-080911	1108425-003C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108425	TS	%	IOA-SS-EU04-0002	1108425-006C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-DUP02-081011	1108425-016C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108425	TS	%	IOA-SS-EU03-0002	1108425-002C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	TS	%	IOA-SS-EU01-0002	1108425-001C	NM	08/09/2011	01/01/1999	08/15/2011	-4603	4609	6
1108425	SIM	%	IOA-SS-EU41-0002	1108425-020A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-DUP02-081011	1108425-016A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU40-0002	1108425-014A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU31-0002	1108425-013A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU01-0002	1108425-001A	NM	08/09/2011	08/16/2011	10/04/2011	7	49	56
1108425	SIM	%	IOA-SS-EU30-0002	1108425-019A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	%	IOA-SS-EU13-0002	1108425-010B	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU29-0002	1108425-017A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU09-0002	1108425-007A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU03-0002	1108425-002A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU17-0002	1108425-011A	NM	08/10/2011	08/11/2011	09/23/2011	1	43	44
1108425	SIM	%	IOA-SS-EU16-0002	1108425-018A	NM	08/10/2011	08/16/2011	09/30/2011	6	45	51
1108425	SIM	%	IOA-SS-EU04-0002	1108425-006A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU06-0002	1108425-008A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52
1108425	SIM	%	IOA-SS-EU07-0002	1108425-004A	NM	08/09/2011	08/16/2011	09/30/2011	7	45	52

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-EU01-0002	UNITS	IOA-SS-DUP01-080911	RPD	D
M	ALUMINUM	4400000	MG/KG	4800000	8.70	400000.00
M	ANTIMONY	150 J	MG/KG	110 J	30.77	40.00
M	ARSENIC	1500	MG/KG	1700	12.50	200.00
M	BARIUM	17000	MG/KG	18000	5.71	1000.00
M	BERYLLIUM	440	MG/KG	370	17.28	70.00
M	CADMIUM	280	MG/KG	200	33.33	80.00
M	CHROMIUM	5500	MG/KG	5700	3.57	200.00
M	COBALT	3200	MG/KG	3100	3.17	100.00
M	COPPER	7700	MG/KG	7800	1.29	100.00
M	IRON	9800000	MG/KG	11000000	11.54	1200000.00
M	LEAD	16000	MG/KG	14000	13.33	2000.00
M	MANGANESE	310000	MG/KG	270000	13.79	40000.00
M	MERCURY	20 J	MG/KG	12 J	50.00	8.00
M	NICKEL	4700	MG/KG	4700	0.00	0.00
M	SELENIUM	870	MG/KG	620 J	33.56	250.00
M	THALLIUM	390	MG/KG	110 J	112.00	280.00
M	VANADIUM	12000	MG/KG	12000	0.00	0.00
M	ZINC	29000	MG/KG	29000	0.00	0.00
MISC	PERCENT MOISTURE	15	%	11	30.77	4.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-EU01-0002DL	UNITS	DA-SS-DUP01-080911DI	RPD	D
M	CALCIUM	1500000	MG/KG	1500000	0.00	0.00
M	MAGNESIUM	1600000	MG/KG	1700000	6.06	100000.00
M	POTASSIUM	330000	MG/KG	360000	8.70	30000.00
M	SODIUM	50000 J	MG/KG	52000 J	3.92	2000.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108425

FRACTION	CHEMICAL	IOA-SS-EU29-0002	UNITS	IOA-SS-DUP02-081011	RPD	D
M	ALUMINUM	7800000	MG/KG	6000000	26.09	1800000.00
M	ANTIMONY	240	MG/KG	200	18.18	40.00
M	ARSENIC	6400	MG/KG	5000	24.56	1400.00
M	BARIUM	18000	MG/KG	15000	18.18	3000.00
M	BERYLLIUM	460	MG/KG	380	19.05	80.00
M	CADMIUM	240	MG/KG	200	18.18	40.00
M	CHROMIUM	14000	MG/KG	10000	33.33	4000.00
M	COBALT	3000	MG/KG	2100	35.29	900.00
M	COPPER	4200	MG/KG	3300	24.00	900.00
M	IRON	21000000	MG/KG	17000000	21.05	4000000.00
M	LEAD	20000	MG/KG	12000	50.00	8000.00
M	MANGANESE	100000	MG/KG	84000	17.39	16000.00
M	MERCURY	7.3 J	MG/KG	7.3 J	0.00	0.00
M	NICKEL	7700	MG/KG	5000	42.52	2700.00
M	SELENIUM	790 J	MG/KG	480 J	48.82	310.00
M	THALLIUM	ND	MG/KG	88 J	200.00	88.00
M	VANADIUM	39000	MG/KG	30000	26.09	9000.00
M	ZINC	29000	MG/KG	21000	32.00	8000.00
MISC	PERCENT MOISTURE	8	%	7	13.33	1.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH

SOIL DATA

1108425

FRACTION	CHEMICAL	IOA-SS-EU29-0002DL	UNITS	OA-SS-DUP02-081011DI	RPD	D
M	CALCIUM	480000	MG/KG	320000	40.00	160000.00
M	MAGNESIUM	1800000	MG/KG	1100000	48.28	700000.00
M	POTASSIUM	480000	MG/KG	390000	20.69	90000.00
M	SODIUM	38000 J	MG/KG	28000 J	30.30	10000.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum	50	53	106	50	47	95	47	95	MS
Antimony	50	0	0	50	0	0	0	0	MS
Arsenic	50	52	105	50	49	97	49	97	MS
Barium	50	53	106	50	48	97	48	97	MS
Beryllium	50	50	100	50	47	95	47	95	MS
Cadmium	50	0	0	50	48	96	48	96	MS
Calcium	5000	5100	102	4000	4000	100	4000	100	MS
Chromium	50	50	99	50	49	99	49	99	MS
Cobalt	50	0	0	50	50	100	50	100	MS
Copper	50	0	0	50	50	101	50	101	MS
Iron	5000	0	0	4000	4400	110	4400	110	MS
Lead	50	52	104	50	51	102	51	102	MS
Magnesium	5000	5100	103	4000	3800	94	3800	94	MS
Manganese	50	47	95	50	50	101	50	101	MS
Nickel	50	46	93	50	50	101	50	101	MS
Potassium	5000	4800	96	4000	4000	100	4000	100	MS
Selenium	50	53	107	50	49	97	49	97	MS
Silver	50	0	0	50	0	0	0	0	MS
Sodium	5000	4800	97	4000	3800	94	3800	94	MS
Thallium	50	52	103	50	51	101	51	101	MS
Vanadium	50	51	101	50	49	97	49	97	MS
Zinc	50	0	0	50	50	100	50	100	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data values found do not match

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Aluminum				50	0	0	0	0	MS
Antimony				50	0	0	0	0	MS
Arsenic				50	48	97	48	97	MS
Barium				50	49	98	49	98	MS
Beryllium				50	47	94	47	94	MS
Cadmium				50	47	94	47	94	MS
Calcium				4000	0	0	0	0	MS
Chromium				50	49	98	49	98	MS
Cobalt				50	48	97	48	97	MS
Copper				50	49	98	49	98	MS
Iron				4000	0	0	0	0	MS
Lead				50	52	104	52	104	MS
Magnesium				4000	0	0	0	0	MS
Manganese				50	0	0	0	0	MS
Nickel				50	48	97	48	97	MS
Potassium				4000	0	0	0	0	MS
Selenium				50	49	98	49	98	MS
Silver				50	0	0	0	0	MS
Sodium				4000	0	0	0	0	MS
Thallium				50	52	103	52	103	MS
Vanadium				50	0	0	0	0	MS
Zinc				50	49	97	49	97	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Aluminum				50	47	94	47	94	MS
Antimony				50	0	0	0	0	MS
Arsenic				50	0	0	0	0	MS
Barium				50	0	0	0	0	MS
Beryllium				50	0	0	0	0	MS
Cadmium				50	0	0	0	0	MS
Calcium				4000	0	0	0	0	MS
Chromium				50	0	0	0	0	MS
Cobalt				50	0	0	0	0	MS
Copper				50	0	0	0	0	MS
Iron				4000	4300	109	4300	109	MS
Lead				50	0	0	0	0	MS
Magnesium				4000	0	0	0	0	MS
Manganese				50	50	99	50	99	MS
Nickel				50	0	0	0	0	MS
Potassium				4000	0	0	0	0	MS
Selenium				50	0	0	0	0	MS
Silver				50	0	0	0	0	MS
Sodium				4000	0	0	0	0	MS
Thallium				50	0	0	0	0	MS
Vanadium				50	0	0	0	0	MS
Zinc				50	0	0	0	0	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R	True	Found	%R	Found	%R	M
Aluminum				50	48	96	48	96	MS
Antimony				50	0	0	0	0	MS
Arsenic				50	0	0	0	0	MS
Barium				50	0	0	0	0	MS
Beryllium				50	0	0	0	0	MS
Cadmium				50	0	0	0	0	MS
Calcium				4000	0	0	0	0	MS
Chromium				50	0	0	0	0	MS
Cobalt				50	0	0	0	0	MS
Copper				50	0	0	0	0	MS
Iron				4000	4200	104	4200	104	MS
Lead				50	0	0	0	0	MS
Magnesium				4000	0	0	0	0	MS
Manganese				50	48	95	48	95	MS
Nickel				50	0	0	0	0	MS
Potassium				4000	0	0	0	0	MS
Selenium				50	0	0	0	0	MS
Silver				50	0	0	0	0	MS
Sodium				4000	0	0	0	0	MS
Thallium				50	0	0	0	0	MS
Vanadium				50	0	0	0	0	MS
Zinc				50	0	0	0	0	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R	True	Found	%R	Found	%R	M
Aluminum				50	0	0	0	0	MS
Antimony				50	0	0	0	0	MS
Arsenic				50	0	0	0	0	MS
Barium				50	0	0	0	0	MS
Beryllium				50	0	0	0	0	MS
Cadmium				50	0	0	0	0	MS
Calcium				4000	3800	96	3800	96	MS
Chromium				50	0	0	0	0	MS
Cobalt				50	0	0	0	0	MS
Copper				50	0	0	0	0	MS
Iron				4000	0	0	0	0	MS
Lead				50	0	0	0	0	MS
Magnesium				4000	3800	96	3800	96	MS
Manganese				50	0	0	0	0	MS
Nickel				50	0	0	0	0	MS
Potassium				4000	3800	95	3800	95	MS
Selenium				50	0	0	0	0	MS
Silver				50	0	0	0	0	MS
Sodium				4000	3800	95	3800	95	MS
Thallium				50	0	0	0	0	MS
Vanadium				50	0	0	0	0	MS
Zinc				50	0	0	0	0	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum				50	0	0	0	0	MS
Antimony				50	0	0	0	0	MS
Arsenic				50	0	0	0	0	MS
Barium				50	0	0	0	0	MS
Beryllium				50	0	0	0	0	MS
Cadmium				50	0	0	0	0	MS
Calcium				4000	3900	97	3900	97	MS
Chromium				50	0	0	0	0	MS
Cobalt				50	0	0	0	0	MS
Copper				50	0	0	0	0	MS
Iron				4000	0	0	0	0	MS
Lead				50	0	0	0	0	MS
Magnesium				4000	4000	100	4000	100	MS
Manganese				50	0	0	0	0	MS
Nickel				50	0	0	0	0	MS
Potassium				4000	3800	95	3800	95	MS
Selenium				50	0	0	0	0	MS
Silver				50	0	0	0	0	MS
Sodium				4000	3700	92	3700	92	MS
Thallium				50	0	0	0	0	MS
Zinc				50	0	0	0	0	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum	50	49	99	50	47	95			MS
Antimony	0.050	0.053	106	50	0	0	0	0	MS
Arsenic	50	51	102	50	46	93			MS
Barium	50	52	103	50	48	96			MS
Beryllium	50	52	103	50	49	98			MS
Cadmium	50	46	92	50	47	94			MS
Calcium	5000	4700	95	4000	3800	94			MS
Chromium	50	48	97	50	49	98			MS
Cobalt	50	49	97	50	50	100			MS
Copper	50	48	95	50	49	99			MS
Iron	5000	5200	104	4000	4200	105			MS
Lead	50	50	101	50	48	96			MS
Magnesium	5000	4900	98	4000	3800	96			MS
Manganese	50	49	98	50	50	100			MS
Nickel	50	49	98	50	50	100			MS
Potassium	5000	4800	96	4000	3800	95			MS
Selenium	50	52	104	50	46	92			MS
Silver	50	0	0	50	0	0	0	0	MS
Sodium	5000	4900	99	4000	3700	94			MS
Thallium	50	50	100	50	48	97			MS
Vanadium	50	49	98	50	48	97			MS
Zinc	50	53	106	50	48	96			MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

Method 200.8 - Summary Report

Sample ID: CCV
Sample Date/Time: Saturday, August 27, 2011 09:27:31
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\epa200.8\no eq as,se\1epa200a no ag,sbnoeq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCV .008

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	28217.733	1.647	28217.733			ug/L
	Be	9	14950.955	2.223	0.529	47.497	1.2	ug/L
	Al	27	202630.756	2.227	0.792	47.459	2.3	ug/L
>	Sc	45	254081.733	0.131	254081.733			ug/L
	V	51	438593.265	1.985	1.719	48.731	2.0	ug/L
	Cr	52	386528.337	1.270	1.496	49.461	1.3	ug/L
	Cr	53	46679.537	0.223	0.179	49.672	0.1	ug/L
	Mn	55	599083.531	0.502	2.355	50.401	0.5	ug/L
	Co	59	528468.252	1.085	2.080	50.008	1.1	ug/L
	Ni	60	118662.126	0.915	0.466	50.434	0.9	ug/L
	Cu	63	279777.001	2.011	1.100	50.480	2.1	ug/L
	Cu	65	138174.841	3.164	0.543	50.782	3.2	ug/L
	Zn	66	82961.194	3.871	0.209	50.059	2.7	ug/L
	Zn	67	14368.021	3.375	0.036	50.261	2.5	ug/L
	Zn	68	60581.387	3.889	0.153	49.783	2.4	ug/L
>	Ge	72	393794.159	1.555	393794.159			ug/L
	As	75	90748.276	2.921	0.230	48.642	2.0	ug/L
	Se	77	6747.838	2.269	0.017	48.690	1.4	ug/L
	Se	82	8282.397	4.022	0.021	48.971	3.4	ug/L
	Y	89	522603.699	1.508	-11833.801			ug/L
	Mo	98	234905.156	3.017	0.413	49.668	3.4	ug/L
	Cd	111	104076.699	1.987	0.183	48.201	2.3	ug/L
	Cd	114	237662.921	1.789	0.418	48.377	2.1	ug/L
>	In	115	568015.537	0.355	568015.537			ug/L
	Ba	137	139742.468	0.849	0.202	48.330	0.7	ug/L
>	Tb	159	692068.978	0.719	692068.978			ug/L
	Tl	203	290871.871	1.240	0.420	50.472	0.6	ug/L
	Tl	205	697999.528	1.942	1.008	50.579	1.2	ug/L
	Pb	208	933432.129	2.913	1.348	50.908	2.2	ug/L
	Na	23	16951780.643	3.591	66.643	3766.809	3.7	ug/L
	Mg	24	11028115.472	3.414	43.395	3766.626	3.5	ug/L
	K	39	33126853.752	2.999	127.273	3983.704	3.2	ug/L
	Ca	43	67588.403	2.236	0.264	3997.081	2.3	ug/L
	Ca	44	1123997.391	2.634	4.255	4217.594	2.8	ug/L
	Fe	54	2420144.278	2.842	9.383	4154.900	2.9	ug/L
	Fe	57	1038479.005	3.041	4.062	4382.925	3.1	ug/L
>	Sc-1	45	254081.733	0.131	254081.733			ug/L

6 pts

As 97.2 Cd 96.5 Cu 101 Tl 101
Ba 96.7 Co 100 Pb 102 V 97
Be 95 Cr 99 Ni 101 Zn 100
Se 97.7

Sample ID: CCV
Report Date/Time: Saturday, August 27, 2011 09:30:01
Page 1

Method 200.8 - Summary Report

Sample ID: CCV-01
Sample Date/Time: Saturday, August 27, 2011 10:10:55
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-01.021

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li-1	6	27274.859	1.327	27274.859			ug/L
[	Be	9	14299.238	1.107	0.524	46.999	0.7	ug/L
[>	Sc	45	251938.655	0.257	251938.655			ug/L
[	V	51	440785.544	2.335	1.742	49.392	2.1	ug/L
[	Cr	52	382647.569	2.758	1.493	49.377	2.6	ug/L
[	Cr	53	45236.333	2.938	0.175	48.515	2.8	ug/L
[	Co	59	506551.741	2.027	2.010	48.340	1.8	ug/L
[	Ni	60	112712.569	1.792	0.447	48.308	1.6	ug/L
[	Cu	63	267115.984	1.413	1.059	48.602	1.3	ug/L
[	Cu	65	131966.332	1.056	0.523	48.909	0.8	ug/L
[	Zn	66	79557.946	0.603	0.208	49.809	0.8	ug/L
[	Zn	67	13747.725	2.507	0.036	49.883	1.6	ug/L
[	Zn	68	59712.151	1.299	0.156	50.922	0.7	ug/L
[>	Ge	72	379609.286	1.004	379609.286			ug/L
[	As	75	90838.465	2.683	0.239	50.511	1.8	ug/L
[	Se	77	6631.085	2.674	0.017	49.646	1.7	ug/L
[	Se	82	8208.257	1.515	0.021	50.360	0.8	ug/L
	Y	89	521322.801	0.622	-13114.699			ug/L
[	Cd	111	104517.314	1.754	0.183	48.242	1.7	ug/L
[	Cd	114	238957.042	1.472	0.419	48.477	1.4	ug/L
[>	In	115	569903.275	0.205	569903.275			ug/L
[	Ba	137	140135.854	2.661	0.209	50.048	2.5	ug/L
[>	Tb	159	670188.853	0.455	670188.853			ug/L
[	Tl	205	684141.744	1.279	1.021	51.196	0.9	ug/L
[	Tl	203	285611.054	1.396	0.426	51.177	1.0	ug/L
[	Pb	208	932534.870	0.745	1.391	52.525	0.3	ug/L

As 101%
Ba 100
Be 94
Cd 96.7
Co 96.7
Cr 97.8
Cu 97.5
Pb 104
Ni 96.6
Se 100
Tl 102
V 98.8
Zn 100

Method 200.8 - Summary Report

Sample ID: CCV-02
Sample Date/Time: Saturday, August 27, 2011 10:40:11
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-02.032

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	27058.208	0.197	27058.208			ug/L
	Be	9	14219.112	0.817	0.525	47.109	1.0	ug/L
>	Sc	45	242314.327	0.598	242314.327			ug/L
	V	51	419118.147	1.371	1.722	48.827	0.8	ug/L
	Cr	52	365472.638	1.919	1.483	49.028	1.3	ug/L
	Cr	53	44039.105	1.935	0.177	49.122	1.5	ug/L
	Co	59	486550.843	1.804	2.008	48.275	1.2	ug/L
	Ni	60	108727.819	1.906	0.448	48.450	1.4	ug/L
	Cu	63	258670.261	1.432	1.066	48.934	0.9	ug/L
	Cu	65	126856.499	1.890	0.523	48.883	1.8	ug/L
	Zn	66	76466.952	1.305	0.204	48.690	1.9	ug/L
	Zn	67	13127.475	2.324	0.035	48.439	3.0	ug/L
	Zn	68	56436.651	1.068	0.150	48.941	1.2	ug/L
>	Ge	72	373206.590	0.630	373206.590			ug/L
	As	75	85482.742	1.440	0.229	48.354	2.0	ug/L
	Se	77	6435.611	1.928	0.017	49.010	2.5	ug/L
	Se	82	7919.857	2.425	0.021	49.420	2.5	ug/L
	Y	89	510233.957	1.314	-24203.543			ug/L
	Cd	111	101190.383	1.841	0.178	46.928	1.8	ug/L
	Cd	114	231457.429	0.951	0.408	47.183	0.9	ug/L
>	In	115	567159.411	0.083	567159.411			ug/L
	Ba	137	136696.112	0.783	0.205	49.117	0.6	ug/L
>	Tb	159	666164.001	1.090	666164.001			ug/L
	Tl	205	685447.881	1.519	1.029	51.603	0.5	ug/L
	Tl	203	283140.128	2.023	0.425	51.039	1.0	ug/L
	Pb	208	919143.700	1.543	1.379	52.082	0.5	ug/L

As 96.7 Cr 98.2 Mo 103
Ba 98.2 Cu 97.8
Be 94.2 Pb 104 V 97.6
Cd 94.1 Ni 96.9 Zn 97.4
Co 96.5 Se 98.4

Sample ID: CCV-02
Report Date/Time: Saturday, August 27, 2011 10:41:10
Page 1

Method 200.8 - Summary Report

Sample ID: CCV-03
Sample Date/Time: Saturday, August 27, 2011 10:53:31
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-03.039

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	LI-1	6	26691.802	1.770	26691.802			ug/L
[	Be	9	13688.969	2.439	0.512	45.994	4.0	ug/L
[>	Sc	45	242190.708	1.303	242190.708			ug/L
|	V	51	415273.429	2.758	1.707	48.399	1.8	ug/L
|	Cr	52	360530.766	3.246	1.463	48.375	2.4	ug/L
|	Cr	53	43004.839	2.037	0.173	47.966	1.6	ug/L
|	Co	59	473862.130	1.811	1.956	47.045	1.9	ug/L
|	Ni	60	106040.447	2.472	0.437	47.280	2.5	ug/L
|	Cu	63	249912.451	1.653	1.030	47.305	1.9	ug/L
[	Cu	65	123198.633	1.562	0.508	47.500	1.9	ug/L
[	Zn	66	76665.961	1.475	0.204	48.823	0.9	ug/L
|	Zn	67	12884.459	1.725	0.034	47.534	1.5	ug/L
|	Zn	68	56465.508	1.458	0.150	48.976	1.2	ug/L
|>	Ge	72	373122.827	0.658	373122.827			ug/L
|	As	75	83806.577	1.460	0.224	47.410	0.8	ug/L
|	Se	77	6124.063	2.355	0.016	46.604	1.7	ug/L
[	Se	82	7537.143	1.722	0.020	47.020	1.3	ug/L
	Y	89	519431.572	0.512	-15005.929			ug/L
[	Cd	111	99179.263	1.501	0.176	46.416	0.7	ug/L
|	Cd	114	225659.242	2.319	0.401	46.421	1.7	ug/L
[>	In	115	561987.954	0.761	561987.954			ug/L
[	Ba	137	133763.541	2.795	0.200	47.957	1.8	ug/L
|>	Tb	159	667528.970	1.117	667528.970			ug/L
|	Tl	205	673183.299	1.301	1.008	50.577	0.6	ug/L
|	Tl	203	278074.548	1.183	0.416	50.026	0.1	ug/L
[	Pb	208	910087.697	0.761	1.363	51.466	0.4	ug/L

As 94.8 Cr 96.3 Tl 100
Bi 95.9 Cu 94.8 V 96.8
Be 91.9 Pb 103 Zn 96.9
Cd 92.8 Ni 94.6
Co 94.1 Se 93.6

Sample ID: CCV-03
Report Date/Time: Saturday, August 27, 2011 10:54:29
Page 1

Method 200.8 - Summary Report

Sample ID: CCV-04
Sample Date/Time: Saturday, August 27, 2011 11:09:25
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\dataset2011\08DATASET11\082711\CCV-04.042

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	187636.773	1.047	0.782	46.870	0.8	ug/L
|>	Sc	45	238212.729	0.703	238212.729			ug/L
⌊	Mn	55	552502.405	1.501	2.316	49.576	0.9	ug/L
⌈	Fe	54	2340349.169	1.319	9.682	4287.476	1.0	ug/L
|	Fe	57	965780.233	1.096	4.029	4347.371	0.8	ug/L
⌊>	Sc-1	45	238212.729	0.703	238212.729			ug/L

Al 93.7

Fe 108

Mn 99.1

Method 200.8 - Summary Report

Sample ID: CCV-05
Sample Date/Time: Saturday, August 27, 2011 12:06:38
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-05.054

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	181185.061	0.089	0.765	45.882	0.3	ug/L
| >	Sc	45	234941.829	0.315	234941.829			ug/L
⌊	Mn	55	551889.315	0.392	2.346	50.214	0.5	ug/L
⌈	Fe	54	2171630.567	1.203	9.101	4030.045	1.1	ug/L
|	Fe	57	963026.231	0.468	4.074	4395.620	0.3	ug/L
⌊ >	Sc-1	45	234941.829	0.315	234941.829			ug/L

Al 91.8

Fe 105

Mn 100

Sample ID: CCV-05
Report Date/Time: Saturday, August 27, 2011 12:06:50
Page 1

Method 200.8 - Summary Report

Sample ID: CCV-06
Sample Date/Time: Saturday, August 27, 2011 12:20:25
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-06.065

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	187186.376	1.318	0.799	47.893	1.6	ug/L
|>	Sc	45	232607.640	0.512	232607.640			ug/L
⌊	Mn	55	518509.298	2.667	2.226	47.647	2.7	ug/L
⌈	Fe	54	2041915.646	2.338	8.636	3824.351	2.6	ug/L
|	Fe	57	904433.644	2.230	3.863	4168.323	2.4	ug/L
⌊>	Sc-1	45	232607.640	0.512	232607.640			ug/L

Al 95.8

Fe 99.9

Mn 95.3

Method 200.8 - Summary Report

Sample ID: CCV-07
Sample Date/Time: Saturday, August 27, 2011 12:33:08
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-07.072

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	179992.391	2.420	0.767	45.959	2.3	ug/L
|>	Sc	45	233000.189	0.599	233000.189			ug/L
⌊	Mn	55	544600.298	1.511	2.335	49.964	1.7	ug/L
⌈	Fe	54	2129395.307	1.098	8.997	3983.956	1.1	ug/L
|	Fe	57	950533.044	1.283	4.054	4374.569	0.9	ug/L
⌊>	Sc-1	45	233000.189	0.599	233000.189			ug/L

Al 91.9
Fe 104
Mn 99.9

Method 200.8 - Summary Report

Sample ID: ICV-02
Sample Date/Time: Saturday, August 27, 2011 13:17:37
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,ICV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\ICV-02.079

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	17611832.678	2.243	74.476	5103.508	1.5	ug/L
|	Mg	24	11716605.612	2.175	49.595	5140.900	1.5	ug/L
|	K	39	37847108.355	2.440	156.982	5041.167	1.7	ug/L
|	Ca	43	79735.569	1.930	0.336	5122.676	1.1	ug/L
|	Ca	44	1326409.704	2.423	5.479	5263.201	1.8	ug/L
⌊>	Sc-1	45	236180.759	0.802	236180.759			ug/L

Ca 104
Mg 103
K 101
Na 102

Method 200.8 - Summary Report

Sample ID: CCV
Sample Date/Time: Saturday, August 27, 2011 13:26:42
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCV .084

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	13171142.875	2.188	55.267	3787.189	1.8	ug/L
|	Mg	24	8785914.593	1.396	36.915	3826.484	1.0	ug/L
|	K	39	28964598.939	1.108	118.482	3804.833	0.8	ug/L
|	Ca	43	60169.149	1.265	0.251	3830.842	1.0	ug/L
|	Ca	44	1014691.090	1.488	4.128	3965.331	1.3	ug/L
⌊>	Sc-1	45	237930.769	0.484	237930.769			ug/L

Ca 97.4

Mg 95.7

K 95.1

Na 94.7

Method 200.8 - Summary Report

Sample ID: CCV-08
Sample Date/Time: Saturday, August 27, 2011 14:13:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-08.096

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	12641988.164	2.719	52.965	3629.437	1.5	ug/L
|	Mg	24	8665664.253	2.341	36.357	3768.666	1.4	ug/L
|	K	39	28288540.699	2.546	115.464	3707.909	1.3	ug/L
|	Ca	43	59702.872	3.246	0.249	3795.229	2.4	ug/L
|	Ca	44	1016050.521	2.077	4.128	3965.069	1.6	ug/L
⌊>	Sc-1	45	238266.400	1.396	238266.400			ug/L

Ca 97.0
Mg 94.2
K 92.7
Na 90.7

Method 200.8 - Summary Report

Sample ID: CCV-09
Sample Date/Time: Saturday, August 27, 2011 14:24:48
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-09.107

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌜	Na	23	12457655.661	2.733	53.542	3669.012	1.3	ug/L
|	Mg	24	8972591.844	2.818	38.616	4002.847	1.5	ug/L
|	K	39	28121175.485	2.072	117.820	3783.570	1.0	ug/L
|	Ca	43	59403.514	2.219	0.254	3874.511	0.9	ug/L
|	Ca	44	1015320.691	2.315	4.234	4067.638	0.9	ug/L
⌞>	Sc-1	45	232260.633	1.474	232260.633			ug/L

Ca 99.3

Mg 100

K 94.6

Na 91.7

Method 200.8 - Summary Report

Sample ID: CCV-10
Sample Date/Time: Saturday, August 27, 2011 14:33:59
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCV-10.114

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	12967032.708	1.987	55.611	3810.795	2.0	ug/L
|	Mg	24	8871181.161	1.900	38.095	3948.835	1.9	ug/L
|	K	39	29128839.076	2.670	121.870	3913.620	2.8	ug/L
|	Ca	43	60715.515	2.813	0.259	3951.516	2.7	ug/L
|	Ca	44	1031409.998	2.553	4.294	4124.490	2.5	ug/L
⌊>	Sc-1	45	232805.922	0.308	232805.922			ug/L

Ca 101
Mg 98.7
K 97.8
Na 95.3

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Antimony				0.050	0.048	96	0.048	96	MS
Silver				0.050	0.047	94	0.047	94	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

Incorrect found results see raw data

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Antimony				0.050	0.047	95	0.047	95	MS
Silver				0.050	0.046	93	0.046	93	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

Method 200.8 - Summary Report

Sample ID: CCV
Sample Date/Time: Wednesday, September 07, 2011 18:56:44
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCV.182

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	463918.400	1.245	0.683	50.432	1.1	ug/L
| >	In	115	678894.043	0.173	678894.043			ug/L
⌊	Sb	121	336659.549	1.158	0.495	49.511	1.0	ug/L

Ag 101

Sb 99.0

Method 200.8 - Summary Report

Sample ID: CCV-19
Sample Date/Time: Wednesday, September 07, 2011 19:21:24
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-19.194

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	458750.684	1.369	0.638	47.092	1.4	ug/L
| >	In	115	718950.837	0.485	718950.837			ug/L
⌊	Sb	121	347204.433	0.946	0.482	48.216	1.0	ug/L

Ag 94.1

Sb 96.4

Method 200.8 - Summary Report

Sample ID: CCV-20
Sample Date/Time: Wednesday, September 07, 2011 19:34:08
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-20.205

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	467793.386	1.117	0.650	47.953	1.3	ug/L
|>	In	115	719962.173	0.462	719962.173			ug/L
⌊	Sb	121	352856.005	1.622	0.490	48.934	1.8	ug/L

Ag 95.9

Sb 97.8

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.27	102.7					
Aluminum	10.0	8.38	83.8					
Arsenic	0.3	0.33	109.3					
Arsenic	0.3	0.32	105.7					
Barium	5.0	5.18	103.7					
Barium	5.0	5.41	108.2					
Beryllium	0.2	0.22	112.5					
Beryllium	0.2	0.18	91.5					
Cadmium	0.2	0.19	96.0					
Cadmium	0.2	0.18	90.5					
Calcium	200.0	182.56	91.3					
Calcium	200.0	218.10	109.0					
Calcium	200.0	189.83	94.9					
Chromium	2.0	2.14	106.8					
Chromium	2.0	2.24	112.0					
Cobalt	1.0	1.06	105.5					
Cobalt	1.0	1.10	109.7					
Copper	1.0	1.07	106.7					
Copper	1.0	1.09	108.8					
Iron	100.0	110.52	110.5					
Iron	40.0	45.79	114.5					
Lead	0.2	0.22	109.0					
Lead	0.2	0.24	118.0					
Magnesium	100.0	106.78	106.8					
Magnesium	100.0	88.62	88.6					
Magnesium	100.0	89.55	89.6					
Manganese	1.0	1.04	104.0					
Manganese	1.0	0.98	98.3					
Nickel	2.0	2.15	107.6					
Nickel	2.0	2.11	105.6					
Potassium	100.0	111.05	111.1					
Potassium	100.0	84.86	84.9					
Potassium	100.0	90.24	90.2					
Selenium	1.0	0.94	93.8					
Selenium	1.0	1.03	103.4					
Sodium	100.0	104.37	104.4					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Sodium	100.0	88.08	88.1					
Sodium	100.0	85.81	85.8					
Thallium	0.4	0.47	117.0					
Thallium	0.4	0.43	106.8					
Vanadium	0.8	0.79	98.3					
Vanadium	0.8	0.83	103.6					
Zinc	10.0	10.65	106.5					
Zinc	10.0	10.40	104.0					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS True	Found	%R	CRDL Standard for ICP Initial True	Found	%R	Final Found	%R
Aluminum	10.0	9.50	95.0					
Antimony	0.5	0.54	107.8					
Antimony	0.0	0.00	104.6					
Antimony	0.0	0.00	118.6					
Arsenic	0.3	0.30	100.3					
Barium	5.0	4.91	98.2					
Beryllium	0.2	0.20	101.0					
Cadmium	0.2	0.21	104.0					
Calcium	200.0	207.14	103.6					
Chromium	2.0	2.02	100.9					
Cobalt	1.0	0.96	96.5					
Copper	1.0	0.98	98.3					
Iron	40.0	39.65	99.1					
Lead	0.2	0.19	96.0					
Magnesium	100.0	102.08	102.1					
Manganese	1.0	0.98	97.9					
Nickel	2.0	1.95	97.4					
Potassium	100.0	107.21	107.2					
Selenium	1.0	0.86	85.8					
Silver	0.3	0.28	93.0					
Silver	0.0	0.00	98.3					
Silver	0.0	0.00	92.7					
Sodium	100.0	100.54	100.5					
Thallium	0.4	0.40	99.5					
Vanadium	0.8	0.83	103.3					
Zinc	10.0	9.64	96.4					

& Blanks change result if < LOD

PROJ_NO	NSAMPLE	PARA	LAB_RES	VAL_RES	LAB_Q	VAL_	QUAL_	LOD	REP_LIMIT	REP_LIMIT_TYPE
02073	IOA-SS-DUP01-080911	ANTIMONY	110	110	J	U	A	37	190	PQL
02073	IOA-SS-DUP01-080911	BERYLLIUM	370	370		U	A	180	360	PQL
02073	IOA-SS-DUP01-080911	CADMIUM	200	200		U	A	91	180	PQL
02073	IOA-SS-DUP01-080911	THALLIUM	110	110	J	U	A	91	360	PQL
02073	IOA-SS-DUP02-081011	ANTIMONY	200	200		U	A	33	170	PQL
02073	IOA-SS-DUP02-081011	CADMIUM	200	200		U	A	77	150	PQL
02073	IOA-SS-DUP02-081011	THALLIUM	88	88	J	U	A	77	310	PQL
02073	IOA-SS-EU01-0002	ANTIMONY	150	150	J	U	A	42	210	PQL
02073	IOA-SS-EU01-0002	CADMIUM	280	280		U	A	72	140	PQL
02073	IOA-SS-EU02-0002	ANTIMONY	84	84	J	U	A	35	170	PQL
02073	IOA-SS-EU02-0002	BERYLLIUM	300	300	J	U	A	150	310	PQL
02073	IOA-SS-EU02-0002	CADMIUM	150	150	J	U	A	77	150	PQL
02073	IOA-SS-EU03-0002	ANTIMONY	130	130	J	U	A	35	170	PQL
02073	IOA-SS-EU03-0002	BERYLLIUM	250	250	J	U	A	130	270	PQL
02073	IOA-SS-EU03-0002	CADMIUM	200	200		U	A	66	130	PQL
02073	IOA-SS-EU03-0002	THALLIUM	140	140	J	U	A	66	270	PQL
02073	IOA-SS-EU04-0002	ANTIMONY	100	100	J	U	A	34	170	PQL
02073	IOA-SS-EU04-0002	BERYLLIUM	300	300	J	U	A	150	300	PQL
02073	IOA-SS-EU04-0002	CADMIUM	170	170		U	A	76	150	PQL
02073	IOA-SS-EU06-0002	ANTIMONY	230	230	J	U	A	52	260	PQL
02073	IOA-SS-EU06-0002	CADMIUM	250	250		U	A	68	140	PQL
02073	IOA-SS-EU07-0002	ANTIMONY	130	130	J	U	A	31	150	PQL
02073	IOA-SS-EU09-0002	BERYLLIUM	300	300	J	U	A	150	310	PQL
02073	IOA-SS-EU09-0002	CADMIUM	300	300		U	A	76	150	PQL
02073	IOA-SS-EU13-0002	ANTIMONY	190	190	J	U	A	47	230	PQL
02073	IOA-SS-EU13-0002	BERYLLIUM	220	220	J	U	A	140	280	PQL
02073	IOA-SS-EU13-0002	CADMIUM	250	250		U	A	69	140	PQL
02073	IOA-SS-EU14-0002	ANTIMONY	140	140	J	U	A	45	220	PQL
02073	IOA-SS-EU14-0002	CADMIUM	180	180		U	A	78	160	PQL
02073	IOA-SS-EU16-0002	ANTIMONY	150	150	J	U	A	37	180	PQL
02073	IOA-SS-EU16-0002	BERYLLIUM	290	290	J	U	A	160	330	PQL
02073	IOA-SS-EU27-0002	ANTIMONY	260	260		U	A	50	250	PQL
02073	IOA-SS-EU27-0002	BERYLLIUM	330	330		U	A	150	300	PQL

02073	IOA-SS-EU27-0002	CADMIUM	180	180	U	A	75	150 PQL
02073	IOA-SS-EU29-0002	ANTIMONY	240	240	U	A	46	230 PQL
02073	IOA-SS-EU29-0002	CADMIUM	240	240	U	A	88	180 PQL
02073	IOA-SS-EU30-0002	ANTIMONY	100	100 J	U	A	47	240 PQL
02073	IOA-SS-EU30-0002	CADMIUM	150	150 J	U	A	89	180 PQL
02073	IOA-SS-EU31-0002	ANTIMONY	92	92 J	U	A	30	150 PQL
02073	IOA-SS-EU31-0002	CADMIUM	270	270	U	A	79	160 PQL
02073	IOA-SS-EU41-0002	ANTIMONY	70	70 J	U	A	39	200 PQL
02073	IOA-SS-EU41-0002	BERYLLIUM	270	270 J	U	A	150	300 PQL
02073	IOA-SS-EU41-0002	CADMIUM	100	100 J	U	A	75	150 PQL

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C	
Aluminum	0.036	J	0.13	J	0.13	J	0.00013	U			
Antimony	0.000034	U	0.000034	U	0.000034	U	0.000034	U			
Arsenic	0.012	J	0.097	J	0.097	J	0.040	J	0.015	U	
Barium	0.000018	J	0.064	J	0.064	J	0.016	J	0.25	U	
Beryllium	0.000038	U	0.093	J	0.093	J	0.011	J	0.020	U	
Cadmium	0.000022	U	0.089	J	0.089	J	0.000022	J	0.010	U	
Calcium	0.0035	J	0.84	J	0.84	J	0.0035	U			
Chromium	0.000054	U	0.11	J	0.11	J	0.012	J	0.0086	J	
Cobalt	0.000010	U	0.081	J	0.081	J	0.014	J	0.050	U	
Copper	0.012	J	0.083	J	0.083	J	0.012	J	0.0072	J	
Iron	1.5	J	13	J	13	J	0.0015	U			
Lead	0.0030	J	0.071	J	0.071	J	0.017	J	0.010	U	
Magnesium	0.20	J	6.0	J	6.0	J	0.035	U			
Manganese	0.000022	J	0.076	J	0.076	J	0.000022	U			
Nickel	0.000025	U	0.083	J	0.083	J	0.016	J	0.10	U	
Potassium	0.65	J	5.4	J	5.4	J	0.0020	U			
Selenium	0.00029	U	0.24	J	0.24	J	0.16	J	0.050	U	
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U			
Sodium	0.17	J	2.9	J	2.9	J	0.0029	U			
Thallium	0.012	J	0.037	J	0.037	J	0.017	J	0.020	U	
Vanadium	0.000023	J	0.069	J	0.069	J	0.000023	J	0.040	U	
Zinc	0.00012	J	0.052	J	0.052	J	0.00012	J	0.024	J	

negative results from raw data rep. as positives raw for use data blanks

FORM III - IN

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum	0.036	J	0.13	J	0.13	J	0.00013	U	0.020	J
Antimony	0.000034	U	0.000034	U	0.000034	U	0.000034	U		
Arsenic	0.012	J	0.097	J	0.097	J	0.040	J		
Barium	0.000018	J	0.064	J	0.064	J	0.016	J		
Beryllium	0.000038	U	0.093	J	0.093	J	0.011	J		
Cadmium	0.000022	U	0.089	J	0.089	J	0.000022	J		
Calcium	0.0035	J	0.84	J	0.84	J	0.0035	U		
Chromium	0.000054	U	0.11	J	0.11	J	0.012	J		
Cobalt	0.000010	U	0.081	J	0.081	J	0.014	J		
Copper	0.012	J	0.083	J	0.083	J	0.012	J		
Iron	1.5	J	13	J	13	J	0.0015	U	2.0	U
Lead	0.0030	J	0.071	J	0.071	J	0.017	J		
Magnesium	0.20	J	6.0	J	6.0	J	0.035	U		
Manganese	0.000022	J	0.076	J	0.076	J	0.000022	U	0.050	U
Nickel	0.000025	U	0.083	J	0.083	J	0.016	J		
Potassium	0.65	J	5.4	J	5.4	J	0.0020	U		
Selenium	0.00029	U	0.24	J	0.24	J	0.16	J		
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U		
Sodium	0.17	J	2.9	J	2.9	J	0.0029	U		
Thallium	0.012	J	0.037	J	0.037	J	0.017	J		
Vanadium	0.000023	J	0.069	J	0.069	J	0.000023	J		
Zinc	0.00012	J	0.052	J	0.052	J	0.00012	J		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum	0.036	J	0.13	J	0.13	J	0.00013	U		
Antimony	0.000034	U	0.000034	U	0.000034	U	0.000034	U		
Arsenic	0.012	J	0.097	J	0.097	J	0.040	J		
Barium	0.000018	J	0.064	J	0.064	J	0.016	J		
Beryllium	0.000038	U	0.093	J	0.093	J	0.011	J		
Cadmium	0.000022	U	0.089	J	0.089	J	0.000022	J		
Calcium	0.0035	J	0.84	J	0.84	J	0.0035	U	10	U
Chromium	0.000054	U	0.11	J	0.11	J	0.012	J		
Cobalt	0.000010	U	0.081	J	0.081	J	0.014	J		
Copper	0.012	J	0.083	J	0.083	J	0.012	J		
Iron	1.5	J	13	J	13	J	0.0015	U		
Lead	0.0030	J	0.071	J	0.071	J	0.017	J		
Magnesium	0.20	J	6.0	J	6.0	J	0.035	U	5.0	U
Manganese	0.000022	J	0.076	J	0.076	J	0.000022	U		
Nickel	0.000025	U	0.083	J	0.083	J	0.016	J		
Potassium	0.65	J	5.4	J	5.4	J	0.0020	U	5.0	U
Selenium	0.00029	U	0.24	J	0.24	J	0.16	J		
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U		
Sodium	0.17	J	2.9	J	2.9	J	0.0029	U	5.0	U
Thallium	0.012	J	0.037	J	0.037	J	0.017	J		
Vanadium	0.000023	J	0.069	J	0.069	J	0.000023	J		
Zinc	0.00012	J	0.052	J	0.052	J	0.00012	J		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.00013	U	0.00013	U	0.10	J		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.057	J	0.057	J	0.00012	U		
Barium			0.033	J	0.033	J	0.000018	U		
Beryllium			0.033	J	0.033	J	0.000038	U		
Cadmium			0.015	J	0.015	J	0.000022	U		
Calcium			0.0035	U	0.0035	U	0.0035	U		
Chromium			0.050	J	0.050	J	0.000054	U		
Cobalt			0.032	J	0.032	J	0.000010	U		
Copper			0.035	J	0.035	J	0.000041	U		
Iron			0.0015	U	0.0015	U	5.8	J		
Lead			0.034	J	0.034	J	0.000018	U		
Magnesium			0.035	U	0.035	U	0.035	U		
Manganese			0.000022	U	0.000022	U	0.000022	J		
Nickel			0.031	J	0.031	J	0.000025	U		
Potassium			0.0020	U	0.0020	U	0.0020	U		
Selenium			0.15	J	0.15	J	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.0029	U	0.0029	U	0.0029	U		
Thallium			0.026	J	0.026	J	0.000021	U		
Zinc			0.010	J	0.010	J	0.00012	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C	
Aluminum			0.00013	U	0.00013	U	0.10	J			N
Antimony			0.000034	U	0.000034	U	0.000034	U			N
Arsenic			0.057	J	0.057	J	0.00012	U			N
Barium			0.033	J	0.033	J	0.000018	U			N
Beryllium			0.033	J	0.033	J	0.000038	U			N
Cadmium			0.015	J	0.015	J	0.000022	U			N
Calcium			0.0035	U	0.0035	U	0.0035	U			N
Chromium			0.050	J	0.050	J	0.000054	U			N
Cobalt			0.032	J	0.032	J	0.000010	U			N
Copper			0.035	J	0.035	J	0.000041	U			N
Iron			0.0015	U	0.0015	U	5.8	J			N
Lead			0.034	J	0.034	J	0.000018	U			N
Magnesium			0.035	U	0.035	U	0.035	U			N
Manganese			0.000022	U	0.000022	U	0.000022	J			N
Nickel			0.031	J	0.031	J	0.000025	U			N
Potassium			0.0020	U	0.0020	U	0.0020	U			N
Selenium			0.15	J	0.15	J	0.00029	U			N
Silver			0.000027	U	0.000027	U	0.000027	U			N
Sodium			0.0029	U	0.0029	U	0.0029	U			N
Thallium			0.026	J	0.026	J	0.000021	U			N
Zinc			0.010	J	0.010	J	0.00012	U			N

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.00013	U	0.00013	U	0.10	J		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.057	J	0.057	J	0.00012	U		
Barium			0.033	J	0.033	J	0.000018	U		
Beryllium			0.033	J	0.033	J	0.000038	U		
Cadmium			0.015	J	0.015	J	0.000022	U		
Calcium			0.0035	U	0.0035	U	0.0035	U		
Chromium			0.050	J	0.050	J	0.000054	U		
Cobalt			0.032	J	0.032	J	0.000010	U		
Copper			0.035	J	0.035	J	0.000041	U		
Iron			0.0015	U	0.0015	U	5.8	J		
Lead			0.034	J	0.034	J	0.000018	U		
Magnesium			0.035	U	0.035	U	0.035	U		
Manganese			0.000022	U	0.000022	U	0.000022	J		
Nickel			0.031	J	0.031	J	0.000025	U		
Potassium			0.0020	U	0.0020	U	0.0020	U		
Selenium			0.15	J	0.15	J	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.0029	U	0.0029	U	0.0029	U		
Thallium			0.026	J	0.026	J	0.000021	U		
Zinc			0.010	J	0.010	J	0.00012	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C	
Aluminum			0.035	J	0.035	J	0.052	J			N
Antimony			0.000034	U	0.000034	U	0.000034	U			N
Arsenic			0.00012	U	0.00012	U	0.00012	U			N
Barium			0.000018	U	0.000018	U	0.000018	U			N
Beryllium			0.000038	U	0.000038	U	0.000038	U			N
Cadmium			0.000022	U	0.000022	U	0.000022	U			N
Calcium			0.0035	U	0.0035	U	0.0035	U			N
Chromium			0.000054	U	0.000054	U	0.000054	U			N
Cobalt			0.000010	U	0.000010	U	0.000010	U			N
Copper			0.000041	U	0.000041	U	0.000041	U			N
Iron			9.1	J	9.1	J	14	J			N
Lead			0.000018	U	0.000018	U	0.000018	U			N
Magnesium			0.035	U	0.035	U	0.035	U			N
Manganese			0.000022	U	0.000022	U	0.047	J			N
Nickel			0.000025	U	0.000025	U	0.000025	U			N
Potassium			0.0020	U	0.0020	U	0.0020	U			N
Selenium			0.00029	U	0.00029	U	0.00029	U			N
Silver			0.000027	U	0.000027	U	0.000027	U			N
Sodium			0.0029	U	0.0029	U	0.0029	U			N
Thallium			0.000021	U	0.000021	U	0.000021	U			N
Zinc			0.00012	U	0.00012	U	0.00012	U			N

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.035	J	0.035	J	0.052	J		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.00012	U	0.00012	U	0.00012	U		
Barium			0.000018	U	0.000018	U	0.000018	U		
Beryllium			0.000038	U	0.000038	U	0.000038	U		
Cadmium			0.000022	U	0.000022	U	0.000022	U		
Calcium			0.0035	U	0.0035	U	0.0035	U		
Chromium			0.000054	U	0.000054	U	0.000054	U		
Cobalt			0.000010	U	0.000010	U	0.000010	U		
Copper			0.000041	U	0.000041	U	0.000041	U		
Iron			9.1	J	9.1	J	14	J		
Lead			0.000018	U	0.000018	U	0.000018	U		
Magnesium			0.035	U	0.035	U	0.035	U		
Manganese			0.000022	U	0.000022	U	0.047	J		
Nickel			0.000025	U	0.000025	U	0.000025	U		
Potassium			0.0020	U	0.0020	U	0.0020	U		
Selenium			0.00029	U	0.00029	U	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.0029	U	0.0029	U	0.0029	U		
Thallium			0.000021	U	0.000021	U	0.000021	U		
Zinc			0.00012	U	0.00012	U	0.00012	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.035	J	0.035	J	0.052	J		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.00012	U	0.00012	U	0.00012	U		
Barium			0.000018	U	0.000018	U	0.000018	U		
Beryllium			0.000038	U	0.000038	U	0.000038	U		
Cadmium			0.000022	U	0.000022	U	0.000022	U		
Calcium			0.0035	U	0.0035	U	0.0035	U		
Chromium			0.000054	U	0.000054	U	0.000054	U		
Cobalt			0.000010	U	0.000010	U	0.000010	U		
Copper			0.000041	U	0.000041	U	0.000041	U		
Iron			9.1	J	9.1	J	14	J		
Lead			0.000018	U	0.000018	U	0.000018	U		
Magnesium			0.035	U	0.035	U	0.035	U		
Manganese			0.000022	U	0.000022	U	0.047	J		
Nickel			0.000025	U	0.000025	U	0.000025	U		
Potassium			0.0020	U	0.0020	U	0.0020	U		
Selenium			0.00029	U	0.00029	U	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.0029	U	0.0029	U	0.0029	U		
Thallium			0.000021	U	0.000021	U	0.000021	U		
Zinc			0.00012	U	0.00012	U	0.00012	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.00013	U	0.00013	U	0.00013	U		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.00012	U	0.00012	U	0.00012	U		
Barium			0.000018	U	0.000018	U	0.000018	U		
Beryllium			0.000038	U	0.000038	U	0.000038	U		
Cadmium			0.000022	U	0.000022	U	0.000022	U		
Calcium			0.55	J	0.55	J	0.0035	J		
Chromium			0.000054	U	0.000054	U	0.000054	U		
Cobalt			0.000010	U	0.000010	U	0.000010	U		
Copper			0.000041	U	0.000041	U	0.000041	U		
Iron			0.0015	U	0.0015	U	0.0015	U		
Lead			0.000018	U	0.000018	U	0.000018	U		
Magnesium			2.6	J	2.6	J	0.98	J		
Manganese			0.000022	U	0.000022	U	0.000022	U		
Nickel			0.000025	U	0.000025	U	0.000025	U		
Potassium			0.0020	J	0.0020	J	0.0020	J		
Selenium			0.00029	U	0.00029	U	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.80	J	0.80	J	0.0029	J		
Thallium			0.000021	U	0.000021	U	0.000021	U		
Zinc			0.00012	U	0.00012	U	0.00012	U		

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.00013	U	0.00013	U	0.00013	U		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.00012	U	0.00012	U	0.00012	U		
Barium			0.000018	U	0.000018	U	0.000018	U		
Beryllium			0.000038	U	0.000038	U	0.000038	U		
Cadmium			0.000022	U	0.000022	U	0.000022	U		
Calcium			0.55	J	0.55	J	0.0035	J		
Chromium			0.000054	U	0.000054	U	0.000054	U		
Cobalt			0.000010	U	0.000010	U	0.000010	U		
Copper			0.000041	U	0.000041	U	0.000041	U		
Iron			0.0015	U	0.0015	U	0.0015	U		
Lead			0.000018	U	0.000018	U	0.000018	U		
Magnesium			2.6	J	2.6	J	0.98	J		
Manganese			0.000022	U	0.000022	U	0.000022	U		
Nickel			0.000025	U	0.000025	U	0.000025	U		
Potassium			0.0020	J	0.0020	J	0.0020	J		
Selenium			0.00029	U	0.00029	U	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.80	J	0.80	J	0.0029	J		
Thallium			0.000021	U	0.000021	U	0.000021	U		
Zinc			0.00012	U	0.00012	U	0.00012	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42478 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23324 Prepa-ration Blank	C
Aluminum			0.00013	U	0.00013	U	0.00013	U		
Antimony			0.000034	U	0.000034	U	0.000034	U		
Arsenic			0.00012	U	0.00012	U	0.00012	U		
Barium			0.000018	U	0.000018	U	0.000018	U		
Beryllium			0.000038	U	0.000038	U	0.000038	U		
Cadmium			0.000022	U	0.000022	U	0.000022	U		
Calcium			0.55	J	0.55	J	0.0035	J		
Chromium			0.000054	U	0.000054	U	0.000054	U		
Cobalt			0.000010	U	0.000010	U	0.000010	U		
Copper			0.000041	U	0.000041	U	0.000041	U		
Iron			0.0015	U	0.0015	U	0.0015	U		
Lead			0.000018	U	0.000018	U	0.000018	U		
Magnesium			2.6	J	2.6	J	0.98	J		
Manganese			0.000022	U	0.000022	U	0.000022	U		
Nickel			0.000025	U	0.000025	U	0.000025	U		
Potassium			0.0020	J	0.0020	J	0.0020	J		
Selenium			0.00029	U	0.00029	U	0.00029	U		
Silver			0.000027	U	0.000027	U	0.000027	U		
Sodium			0.80	J	0.80	J	0.0029	J		
Thallium			0.000021	U	0.000021	U	0.000021	U		
Zinc			0.00012	U	0.00012	U	0.00012	U		

Method 200.8 - Summary Report

Sample ID: CCB
Sample Date/Time: Saturday, August 27, 2011 09:30:42
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\epa200.8\no eq as,se\1epa200a no ag,sbnoeq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCB .009

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li-1	6	29412.842	1.080	29412.842			ug/L
[	Be	9	48.667	109.143	0.001	0.093	176.2	ug/L
[	Al	27	2031.575	30.683	0.002	0.131	114.3	ug/L
[>	Sc	45	256918.134	1.205	256918.134			ug/L
[	V	51	2513.569	52.177	0.002	0.069	212.8	ug/L
[	Cr	52	7433.085	15.373	0.003	0.110	142.8	ug/L
[	Cr	53	1162.742	12.798	-0.000	-0.025	704.9	ug/L
[	Mn	55	1634.221	86.745	0.004	0.076	157.7	ug/L
[	Co	59	920.105	137.050	0.003	0.081	148.2	ug/L
[	Ni	60	364.677	74.941	0.001	0.083	140.6	ug/L
[	Cu	63	848.056	79.212	0.002	0.083	147.6	ug/L
[	Cu	65	443.348	73.546	0.001	0.082	146.5	ug/L
[	Zn	66	556.018	35.516	0.000	0.052	213.7	ug/L
[	Zn	67	229.336	16.112	0.000	0.084	136.2	ug/L
[	Zn	68	530.683	27.635	0.000	0.057	197.5	ug/L
[>	Ge	72	393023.931	2.135	393023.931			ug/L
[	As	75	292.673	71.007	0.000	0.097	110.6	ug/L
[	Se	77	135.334	10.059	0.000	0.244	38.8	ug/L
[	Se	82	45.971	83.753	-0.000	-0.117	203.1	ug/L
	Y	89	547558.025	1.163	13120.524			ug/L
[	Mo	98	1727.773	51.417	0.003	0.314	59.4	ug/L
[	Cd	111	522.771	44.728	0.000	0.089	120.4	ug/L
[	Cd	114	445.800	130.225	0.001	0.083	140.7	ug/L
[>	In	115	573557.933	0.423	573557.933			ug/L
[	Ba	137	223.240	102.890	0.000	0.064	129.5	ug/L
[>	Tb	159	663544.087	0.224	663544.087			ug/L
[	Tl	203	267.339	70.442	0.000	0.036	94.1	ug/L
[	Tl	205	614.029	77.658	0.001	0.037	96.5	ug/L
[	Pb	208	1475.421	113.987	0.002	0.071	135.9	ug/L
[	Na	23	32897.639	52.539	0.052	2.922	132.9	ug/L
[	Mg	24	19884.093	124.475	0.069	5.970	141.6	ug/L
[	K	39	842372.585	3.239	0.172	5.370	82.3	ug/L
[	Ca	43	644.023	13.969	0.000	0.838	680.6	ug/L
[	Ca	44	40033.477	5.707	-0.013	-12.965	79.9	ug/L
[	Fe	54	45216.128	15.222	0.034	14.936	84.6	ug/L
[	Fe	57	9519.974	31.318	0.012	12.806	101.0	ug/L
[>	Sc-1	45	256918.134	1.205	256918.134			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-01
Sample Date/Time: Saturday, August 27, 2011 10:13:12
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-01.022

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	26833.544	0.206	26833.544			ug/L
	Be	9	20.000	20.000	0.000	0.011	124.9	ug/L
>	Sc	45	249666.075	0.932	249666.075			ug/L
	V	51	1716.239	14.631	-0.000	-0.014	221.1	ug/L
	Cr	52	6490.983	1.509	0.000	0.012	178.0	ug/L
	Cr	53	881.376	2.204	-0.001	-0.302	7.0	ug/L
	Co	59	206.003	48.281	0.001	0.014	72.1	ug/L
	Ni	60	202.002	0.990	0.000	0.016	9.0	ug/L
	Cu	63	444.678	17.618	0.000	0.012	125.0	ug/L
	Cu	65	243.337	14.149	0.000	0.011	119.0	ug/L
	Zn	66	418.676	7.663	-0.000	-0.020	98.3	ug/L
	Zn	67	161.335	14.893	-0.000	-0.136	62.9	ug/L
	Zn	68	396.009	2.202	-0.000	-0.042	13.1	ug/L
>	Ge	72	379290.161	0.603	379290.161			ug/L
	As	75	178.002	8.102	0.000	0.040	20.9	ug/L
	Se	77	119.334	23.243	0.000	0.159	131.7	ug/L
	Se	82	83.832	92.043	0.000	0.127	379.4	ug/L
	Y	89	516610.576	0.206	-17826.925			ug/L
	Cd	111	294.521	10.894	-0.000	-0.016	94.8	ug/L
	Cd	114	96.833	35.389	0.000	0.013	54.0	ug/L
>	In	115	574776.310	0.482	574776.310			ug/L
	Ba	137	91.122	37.325	0.000	0.016	75.6	ug/L
>	Tb	159	662503.118	0.524	662503.118			ug/L
	Tl	205	348.674	21.785	0.000	0.017	33.8	ug/L
	Tl	203	135.334	24.388	0.000	0.012	49.0	ug/L
	Pb	208	534.007	35.009	0.000	0.017	63.6	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-02
Sample Date/Time: Saturday, August 27, 2011 10:43:24
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-02.033

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	27413.272	0.872	27413.272			ug/L
	Be	9	40.000	86.747	0.001	0.075	152.2	ug/L
>	Sc	45	242699.728	0.548	242699.728			ug/L
	V	51	2585.709	47.928	0.003	0.094	156.2	ug/L
	Cr	52	7266.988	20.879	0.004	0.142	148.0	ug/L
	Cr	53	962.718	13.549	-0.001	-0.180	85.7	ug/L
	Co	59	1141.476	122.113	0.004	0.107	129.7	ug/L
	Ni	60	376.678	79.615	0.001	0.097	138.7	ug/L
	Cu	63	956.069	75.083	0.002	0.111	122.7	ug/L
	Cu	65	468.017	77.012	0.001	0.101	138.6	ug/L
	Zn	66	568.020	44.277	0.000	0.082	200.2	ug/L
	Zn	67	174.668	15.546	-0.000	-0.073	143.1	ug/L
	Zn	68	524.016	23.803	0.000	0.078	142.8	ug/L
>	Ge	72	371552.448	0.705	371552.448			ug/L
	As	75	288.673	67.475	0.001	0.106	105.5	ug/L
	Se	77	118.001	11.114	0.000	0.167	61.5	ug/L
	Se	82	22.288	279.934	-0.000	-0.251	156.9	ug/L
	Y	89	514243.926	0.286	-20193.575			ug/L
	Cd	111	498.490	46.188	0.000	0.079	133.8	ug/L
	Cd	114	473.599	120.934	0.001	0.089	129.9	ug/L
>	In	115	570670.987	0.188	570670.987			ug/L
	Ba	137	281.894	102.129	0.000	0.085	122.1	ug/L
>	Tb	159	665106.974	0.188	665106.974			ug/L
	Tl	205	816.714	65.193	0.001	0.053	76.5	ug/L
	Tl	203	314.007	62.007	0.000	0.045	79.0	ug/L
	Pb	208	1640.765	102.892	0.002	0.080	120.4	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-03
Sample Date/Time: Saturday, August 27, 2011 10:56:05
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-03.040

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	26147.550	0.691	26147.550			ug/L
	Be	9	26.000	40.704	0.000	0.033	111.7	ug/L
>	Sc	45	244502.402	0.500	244502.402			ug/L
	V	51	1919.738	20.095	0.000	0.014	323.9	ug/L
	Cr	52	6644.429	3.135	0.002	0.050	48.3	ug/L
	Cr	53	836.039	7.675	-0.001	-0.333	21.2	ug/L
	Co	59	386.678	77.571	0.001	0.032	93.0	ug/L
	Ni	60	232.003	44.303	0.000	0.031	144.2	ug/L
	Cu	63	556.019	40.400	0.001	0.035	121.3	ug/L
	Cu	65	302.005	24.234	0.000	0.036	77.6	ug/L
	Zn	66	462.012	9.435	0.000	0.010	279.1	ug/L
	Zn	67	160.668	2.875	-0.000	-0.132	12.1	ug/L
	Zn	68	414.676	5.894	-0.000	-0.022	93.2	ug/L
>	Ge	72	375364.899	0.208	375364.899			ug/L
	As	75	206.002	27.853	0.000	0.057	56.5	ug/L
	Se	77	117.334	8.579	0.000	0.153	50.4	ug/L
	Se	82	63.232	198.901	0.000	0.001	86264.0	ug/L
	Y	89	517631.213	0.612	-16806.288			ug/L
	Cd	111	359.858	17.251	0.000	0.015	186.4	ug/L
	Cd	114	183.688	66.664	0.000	0.030	80.8	ug/L
>	In	115	572306.106	1.223	572306.106			ug/L
	Ba	137	136.388	50.612	0.000	0.033	76.9	ug/L
>	Tb	159	663062.109	0.993	663062.109			ug/L
	Tl	205	461.347	48.638	0.001	0.026	66.3	ug/L
	Tl	203	188.002	41.422	0.000	0.022	65.2	ug/L
	Pb	208	830.018	55.975	0.001	0.034	79.0	ug/L

Method 200.8 - Summary Report

Sample ID: MB-23324
Sample Date/Time: Saturday, August 27, 2011 09:44:53
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\082711\MB-23324.010

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	28660.443	0.949	28660.443			ug/L
	Be	9	19.333	23.890	0.000	0.004	335.6	ug/L
>	Sc	45	253460.118	1.782	253460.118			ug/L
	V	51	1930.203	14.983	0.000	0.007	429.3	ug/L
	Cr	52	7810.687	0.150	0.005	0.171	9.8	ug/L
	Cr	53	1202.079	2.330	0.000	0.034	23.3	ug/L
	Co	59	233.336	2.157	0.001	0.016	1.2	ug/L
	Ni	60	422.677	6.976	0.001	0.109	10.8	ug/L
	Cu	63	1176.743	6.073	0.003	0.144	10.1	ug/L
	Cu	65	601.353	7.499	0.002	0.142	14.3	ug/L
	Zn	66	1220.749	2.432	0.002	0.474	3.4	ug/L
	Zn	67	327.339	12.616	0.000	0.459	32.0	ug/L
	Zn	68	994.054	5.289	0.001	0.461	9.1	ug/L
>	Ge	72	384625.335	0.328	384625.335			ug/L
	As	75	236.670	0.488	0.000	0.071	0.7	ug/L
	Se	77	113.334	2.696	0.000	0.101	19.9	ug/L
	Se	82	-63.703	116.457	-0.000	-0.781	57.8	ug/L
	Y	89	528687.548	1.272	-5749.952			ug/L
	Cd	111	397.251	6.321	0.000	0.030	39.9	ug/L
	Cd	114	128.709	12.309	0.000	0.019	16.3	ug/L
>	In	115	579299.699	0.299	579299.699			ug/L
	Ba	137	235.672	11.117	0.000	0.067	12.9	ug/L
>	Tb	159	674644.328	0.810	674644.328			ug/L
	Tl	205	602.020	3.045	0.001	0.036	3.7	ug/L
	Tl	203	243.337	12.365	0.000	0.031	16.8	ug/L
	Pb	208	1206.698	5.896	0.001	0.054	6.5	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-04
Sample Date/Time: Saturday, August 27, 2011 11:14:29
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\dataset2011\08DATASET11\082711\CCB-04.043

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1745.518	39.336	0.002	0.101	174.3	ug/L
| >	Sc	45	235490.442	0.465	235490.442			ug/L
⌊	Mn	55	646.690	3.842	-0.000	-0.002	104.0	ug/L
⌈	Fe	54	35401.016	1.295	0.008	3.493	30.6	ug/L
|	Fe	57	7221.534	0.777	0.005	5.832	5.7	ug/L
⌊ >	Sc-1	45	235490.442	0.465	235490.442			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-05
Sample Date/Time: Saturday, August 27, 2011 12:11:10
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-05.055

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌜	Al	27	1418.777	1.412	0.000	0.023	12.9	ug/L
|>	Sc	45	232068.299	1.106	232068.299			ug/L
⌞	Mn	55	723.362	2.797	0.000	0.006	44.2	ug/L
⌜	Fe	54	36002.739	1.285	0.013	5.620	7.6	ug/L
|	Fe	57	7517.774	0.369	0.007	7.699	4.8	ug/L
⌞>	Sc-1	45	232068.299	1.106	232068.299			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-06
Sample Date/Time: Saturday, August 27, 2011 12:24:39
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-06.066

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1459.451	5.862	0.001	0.035	68.2	ug/L
|>	Sc	45	231308.684	1.217	231308.684			ug/L
⌊	Mn	55	658.024	4.777	-0.000	-0.000	34077.6	ug/L
⌈	Fe	54	35324.744	1.451	0.010	4.560	36.2	ug/L
|	Fe	57	7802.014	1.407	0.008	9.138	3.4	ug/L
⌊>	Sc-1	45	231308.684	1.217	231308.684			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-07
Sample Date/Time: Saturday, August 27, 2011 12:35:19
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-07.073

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1546.798	3.815	0.001	0.052	29.0	ug/L
| >	Sc	45	234237.315	0.181	234237.315			ug/L
⌊	Mn	55	1180.077	12.377	0.002	0.047	28.6	ug/L
⌈	Fe	54	39857.869	1.727	0.028	12.271	9.8	ug/L
|	Fe	57	8976.435	4.170	0.013	14.091	11.7	ug/L
⌊ >	Sc-1	45	234237.315	0.181	234237.315			ug/L

Method 200.8 - Summary Report

Sample ID: MB-23324
Sample Date/Time: Saturday, August 27, 2011 11:15:39
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\082711\MB-23324.044

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	2947.811	2.683	0.007	0.407	4.8	ug/L
| >	Sc	45	235491.120	0.427	235491.120			ug/L
⌊	Mn	55	1644.816	4.092	0.004	0.089	7.1	ug/L
⌈	Fe	54	36505.899	0.563	0.013	5.569	10.7	ug/L
|	Fe	57	7492.420	1.730	0.007	7.072	6.6	ug/L
⌊ >	Sc-1	45	235491.120	0.427	235491.120			ug/L

Method 200.8 - Summary Report

Sample ID: ICB-02
Sample Date/Time: Saturday, August 27, 2011 13:21:39
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,ICB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\ICB-02.080

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌜	Na	23	21192.007	0.972	0.003	0.171	30.8	ug/L
|	Mg	24	2519.683	3.613	0.000	0.002	2059.5	ug/L
|	K	39	768202.468	0.275	0.020	0.646	176.3	ug/L
|	Ca	43	396.009	1.821	-0.000	-0.317	139.6	ug/L
|	Ca	44	31231.557	0.584	-0.004	-3.608	65.2	ug/L
⌞>	Sc-1	45	234849.782	1.253	234849.782			ug/L

Method 200.8 - Summary Report

Sample ID: CCB
Sample Date/Time: Saturday, August 27, 2011 13:29:45
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCB .085

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	17894.264	1.728	-0.012	-0.804	11.6	ug/L
|	Mg	24	2495.009	0.509	-0.000	-0.012	146.7	ug/L
|	K	39	736697.478	0.646	-0.122	-3.929	19.4	ug/L
|	Ca	43	370.008	1.081	-0.000	-2.069	8.6	ug/L
|	Ca	44	32065.118	0.675	-0.001	-0.553	199.5	ug/L
⌊>	Sc-1	45	235463.308	1.160	235463.308			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-08
Sample Date/Time: Saturday, August 27, 2011 14:15:43
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-08.097

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	24285.790	5.332	0.012	0.795	43.3	ug/L
|	Mg	24	8700.221	14.665	0.025	2.578	20.6	ug/L
|	K	39	736566.803	0.150	-0.238	-7.649	3.2	ug/L
|	Ca	43	426.010	12.198	0.000	0.546	601.2	ug/L
|	Ca	44	35123.732	1.515	0.007	6.640	24.5	ug/L
⌊>	Sc-1	45	244461.978	0.358	244461.978			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-09
Sample Date/Time: Saturday, August 27, 2011 14:28:46
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-09.108

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌜	Na	23	17591.673	1.334	-0.015	-0.999	6.5	ug/L
|	Mg	24	4855.302	8.217	0.009	0.983	17.5	ug/L
|	K	39	714753.377	0.335	-0.279	-8.954	3.1	ug/L
|	Ca	43	376.674	7.011	-0.000	-2.145	77.7	ug/L
|	Ca	44	33863.622	0.710	0.004	3.904	24.4	ug/L
⌞>	Sc-1	45	240464.086	0.053	240464.086			ug/L

Sample ID: CCB-09
Report Date/Time: Saturday, August 27, 2011 14:41:03
Page 1

Method 200.8 - Summary Report

Sample ID: CCB-10
Sample Date/Time: Saturday, August 27, 2011 14:35:47
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\CCB-10.115

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	23053.238	4.800	0.007	0.513	61.0	ug/L
|	Mg	24	7393.706	13.018	0.020	2.056	20.0	ug/L
|	K	39	729678.698	0.344	-0.237	-7.614	4.5	ug/L
|	Ca	43	410.009	6.379	-0.000	-0.204	813.8	ug/L
|	Ca	44	34315.984	1.123	0.005	4.793	33.7	ug/L
⌊>	Sc-1	45	242087.670	0.134	242087.670			ug/L

Method 200.8 - Summary Report

Sample ID: MB-23324
Sample Date/Time: Saturday, August 27, 2011 13:36:57
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\082711\MB-23324.086

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	17065.342	2.337	-0.014	-0.969	15.7	ug/L
|	Mg	24	2210.269	0.789	-0.001	-0.122	13.3	ug/L
|	K	39	733843.393	0.343	-0.087	-2.778	41.8	ug/L
|	Ca	43	402.009	1.723	0.000	0.408	166.8	ug/L
|	Ca	44	32255.123	0.794	0.002	2.240	33.2	ug/L
⌊>	Sc-1	45	231898.638	0.899	231898.638			ug/L

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42688 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23325 Prepa-ration Blank	C	
Aluminum	0.00013	J	0.00013	J							N
Antimony	0.00015	J	0.000034	U	0.000034	U	0.00013	J	0.025	U	N
Arsenic	0.033	J	0.00012	J							N
Barium	0.011	J	0.0080	J							N
Beryllium	0.044	J	0.013	J							N
Cadmium	0.033	J	0.029	J							N
Calcium	0.0035	J	0.0035	J							N
Chromium	0.049	J	0.017	J							N
Cobalt	0.011	J	0.0050	J							N
Copper	0.028	J	0.0050	J							N
Iron	0.0015	J	0.0015	J							N
Lead	0.0090	J	0.0030	J							N
Magnesium	0.88	J	0.28	J							N
Manganese	0.0070	J	0.000022	J							N
Nickel	0.024	J	0.0040	J							N
Potassium	0.78	J	0.0020	J							N
Selenium	0.00029	J	0.00029	J							N
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U	0.015	U	N
Sodium	0.90	J	0.21	J							N
Thallium	0.014	J	0.022	J							N
Vanadium	0.11	J	0.057	J							N
Zinc	0.00012	J	0.00012	J							N

negative results from raw data rep as positives. use raw data for blanks.

FORM III - IN

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42688 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23325 Prepa-ration Blank	C	
Antimony			0.000084	J	0.000084	J	0.000073	J			N
Silver			0.000027	U	0.000027	U	0.000027	U			N

Method 200.8 - Summary Report

Sample ID: CCB
Sample Date/Time: Wednesday, September 07, 2011 19:01:14
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCB.183

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	254.670	6.396	0.000	0.011	14.6	ug/L
| >	In	115	682359.960	0.601	682359.960			ug/L
⌊	Sb	121	1334.098	3.226	0.001	0.134	5.1	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-19
Sample Date/Time: Wednesday, September 07, 2011 19:26:21
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-19.195

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[	Ag	107	256.670	6.488	0.000	0.010	16.2	ug/L
|>	In	115	724596.209	0.675	724596.209			ug/L
[	Sb	121	1092.066	4.644	0.001	-0.089	7.8	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-20
Sample Date/Time: Wednesday, September 07, 2011 19:37:15
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-20.206

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	222.669	3.630	0.000	0.006	11.1	ug/L
\>	In	115	718076.102	1.736	718076.102			ug/L
⌊	Sb	121	1044.727	1.918	0.001	0.084	1.5	ug/L

Method 200.8 - Summary Report

Sample ID: MB-23325
Sample Date/Time: Wednesday, September 07, 2011 19:04:05
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,MBLK
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090711\MB-23325.184

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	362.674	7.344	0.000	0.021	13.1	ug/L
| >	In	115	708893.235	0.203	708893.235			ug/L
⌊	Sb	121	978.053	6.389	0.001	0.076	11.4	ug/L

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	9832	9470.0	94.7			
Antimony	0	0	0	0.0	0.0	0	0.0	
Arsenic	0	20	0	19.1	95.3			
Barium	0	0	0	0.1	0.0			
Beryllium	0	0	0	0.0	0.0			
Cadmium	0	20	0	18.6	93.0			
Calcium	10000	10000	9515	9226.4	92.3			
Chromium	0	20	0	20.0	100.0			
Cobalt	0	20	0	19.7	98.7			
Copper	0	20	1	19.5	97.6			
Iron	10000	10000	10335	10117.5	101.2			
Lead	0	0	0	0.1	0.0			
Magnesium	10000	10000	9390	9020.8	90.2			
Manganese	0	20	0	19.9	99.7			
Nickel	0	20	1	20.1	100.5			
Potassium	10000	10000	9581	9204.2	92.0			
Selenium	0	0	0	0.0	0.0			
Silver	0	20	0	0.0	80.2	0	0.0	0.0
Sodium	10000	10000	9507	8940.7	89.4			
Thallium	0	0	0	0.0	0.0			
Vanadium	0	0	0	-0.3	0.0			
Zinc	0	20	1	20.7	103.5			

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	0	0.0	0.0	9474	9591.2	95.9
Antimony	0	0	0	0.0	0.0	0	0.0	
Arsenic	0	20	0	0.0	0.0	0	20.5	102.7
Barium	0	0	0	0.0	0.0	0	0.1	
Beryllium	0	0	0	0.0	0.0	0	0.0	
Cadmium	0	20	0	0.0	0.0	0	20.1	100.4
Calcium	10000	10000	9431	9832.2	98.3	9445	9588.9	95.9
Chromium	0	20	0	0.0	0.0	0	21.2	105.9
Cobalt	0	20	0	0.0	0.0	0	20.3	101.6
Copper	0	20	0	0.0	0.0	0	20.2	100.8
Iron	10000	10000	0	0.0	0.0	10288	10727.4	107.3
Lead	0	0	0	0.0	0.0	0	0.1	
Magnesium	10000	10000	9478	9910.8	99.1	8922	8846.3	88.5
Manganese	0	20	0	0.0	0.0	1	21.1	105.4
Nickel	0	20	0	0.0	0.0	0	20.3	101.5
Potassium	10000	10000	9407	9921.3	99.2	9556	9657.1	96.6
Selenium	0	0	0	0.0	0.0	1	1.2	
Silver	0	20	0	0.0	0.0	0	0.0	0.0
Sodium	10000	10000	9518	9874.5	98.7	8899	8835.8	88.4
Thallium	0	0	0	0.0	0.0	0	0.0	
Vanadium	0	0	0	0.0	0.0	0	-0.3	
Zinc	0	20	0	0.0	0.0	1	21.9	109.4

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU09-0002S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 86.0

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		5776.1385		5595.2917		48.43	373.4		MS
Antimony	80-120	39.6827		0.2442		43.05	91.6		MS
Arsenic	80-120	48.5534		1.3918		48.43	97.4		MS
Barium	80-120	70.3911		21.8759		48.43	100.2		MS
Beryllium	80-120	46.2723		0.3013	J	48.43	94.9		MS
Cadmium	80-120	48.3219		0.2975		48.43	99.2		MS
Calcium	80-120	1813.2270		1128.5468		484.31	141.4		MS
Chromium	80-120	54.8999		8.1036		48.43	96.6		MS
Cobalt	80-120	48.0420		2.7820		48.43	93.5		MS
Copper	80-120	55.2728		9.7072		48.43	94.1		MS
Iron		11294.0796		10744.3010		484.31	113.5		MS
Lead	80-120	96.7523		35.6299		48.43	126.2		MS
Magnesium	80-120	2020.2469		1588.5954		484.31	89.1		MS
Manganese	80-120	281.1732		182.9329		48.43	202.8		MS
Mercury	80-120	0.0721		0.0204	J	0.05	99.4		AV
Nickel	80-120	49.9114		4.5791		48.43	93.6		MS
Potassium	80-120	763.6949		238.0721		484.31	108.5		MS
Selenium	80-120	47.0375		0.6515	J	48.43	95.8		MS
Silver	80-120	40.3715		0.0950	U	43.05	93.8		MS
Sodium	80-120	589.0030		50.6426	J	484.31	111.2		MS
Thallium	80-120	50.9237		0.3678		48.43	104.4		MS
Vanadium	80-120	64.1919		15.4570		48.43	100.6		MS
Zinc	80-120	83.0947		36.8626		48.43	95.5		MS

Comments:

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU09-0002SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 86.0

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		5901.7612		5595.2917		47.64	643.3		MS
Antimony	80-120	36.1610		0.2442		39.27	91.5		MS
Arsenic	80-120	46.9391		1.3918		47.64	95.6		MS
Barium	80-120	68.9685		21.8759		47.64	98.9		MS
Beryllium	80-120	45.3584		0.3013	J	47.64	94.6		MS
Cadmium	80-120	47.0019		0.2975		47.64	98.0		MS
Calcium	80-120	1697.7641		1128.5468		476.37	119.5		MS
Chromium	80-120	53.2205		8.1036		47.64	94.7		MS
Cobalt	80-120	46.0406		2.7820		47.64	90.8		MS
Copper	80-120	52.8880		9.7072		47.64	90.6		MS
Iron		11343.2116		10744.3010		476.37	125.7		MS
Lead	80-120	92.7386		35.6299		47.64	119.9		MS
Magnesium	80-120	1949.9661		1588.5954		476.37	75.9		MS
Manganese	80-120	232.1085		182.9329		47.64	103.2		MS
Mercury	80-120	0.0673		0.0204	J	0.06	84.7		AV
Nickel	80-120	47.4126		4.5791		47.64	89.9		MS
Potassium	80-120	680.9673		238.0721		476.37	93.0		MS
Selenium	80-120	45.3889		0.6515	J	47.64	93.9		MS
Silver	80-120	37.9791		0.0950	U	39.27	96.7		MS
Sodium	80-120	522.4729		50.6426	J	476.37	99.0		MS
Thallium	80-120	48.8541		0.3678		47.64	101.8		MS
Vanadium	80-120	62.0182		15.4570		47.64	97.7		MS
Zinc	80-120	79.3592		36.8626		47.64	89.2		MS

Comments:

5C

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: _____ SAS No.: _____ SDG No.: 1108425

Matrix Spike - Client SampID IOA-SS-EU09-0002SD Level: (low/med) LOW

COMPOUND	SPIKE ADDED MG/KG	MSD CONCENTRATION MG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aluminum	47.64	5902	643	2.15	20	80-120
Antimony	39.27	36.16	91.5	9.29	20	80-120
Arsenic	47.64	46.94	95.6	3.38	20	80-120
Barium	47.64	68.97	98.9	2.04	20	80-120
Beryllium	47.64	45.36	94.6	1.99	20	80-120
Cadmium	47.64	47.00	98.0	2.77	20	80-120
Calcium	476.4	1698	119	6.58	20	80-120
Chromium	47.64	53.22	94.7	3.11	20	80-120
Cobalt	47.64	46.04	90.8	4.25	20	80-120
Copper	47.64	52.89	90.6	4.41	20	80-120
Iron	476.4	11340	126	0.434	20	80-120
Lead	47.64	92.74	120	4.24	20	80-120
Magnesium	476.4	1950	75.9	3.54	20	80-120
Manganese	47.64	232.1	103	19.1	20	80-120
Mercury	0.05535	0.06731	84.7	6.93	20	80-120
Nickel	47.64	47.41	89.9	5.14	20	80-120
Potassium	476.4	681.0	93.0	11.5	20	80-120
Selenium	47.64	45.39	93.9	3.57	20	80-120
Silver	39.27	37.98	96.7	6.11	20	80-120
Sodium	476.4	522.5	99.0	12.0	20	80-120
Thallium	47.64	48.85	102	4.15	20	80-120
Vanadium	47.64	62.02	97.7	3.44	20	80-120
Zinc	47.64	79.36	89.2	4.60	20	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: _____ out of 0 outside limits

Spike Recovery: _____ out of 0 outside limits

COMMENTS: _____

FORM V

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Aluminum				50.0	41.7		83.4
Arsenic				50.0	48.8		97.6
Barium				50.0	50.1		100.1
Beryllium				50.0	47.0		94.0
Cadmium				50.0	47.2		94.4
Calcium				500.0	514.0		102.8
Chromium				50.0	50.0		100.0
Cobalt				50.0	49.1		98.1
Copper				50.0	49.5		98.9
Iron				500.0	563.7		112.7
Lead				50.0	52.9		105.8
Magnesium				500.0	516.0		103.2
Manganese				50.0	45.8		91.7
Nickel				50.0	48.6		97.2
Potassium				500.0	475.9		95.2
Selenium				50.0	48.3		96.7
Sodium				500.0	508.1		101.6
Thallium				50.0	51.9		103.8
Vanadium				50.0	49.6		99.2
Zinc				50.0	48.7		97.3

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Antimony				50.0	52.3		104.5
Silver				50.0	51.8		103.7

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Aluminum			10	0.13	MS
Antimony			0.50	0.034	MS
Arsenic			0.30	0.12	MS
Barium			5.0	0.018	MS
Beryllium			0.20	0.038	MS
Boron			100	0	MS
Cadmium			0.20	0.022	MS
Calcium			200	3.5	MS
Chromium			2.0	0.054	MS
Cobalt			1.0	0.010	MS
Copper			1.0	0.041	MS
Iron			20	1.5	MS
Lead			0.20	0.018	MS
Lithium			50	0	MS
Magnesium			100	35	MS
Manganese			1.0	0.022	MS
Molybdenum			1.0	0.063	MS
Nickel			2.0	0.025	MS
Potassium			100	2.0	MS
Ruthenium			100	0	MS
Selenium			1.0	0.29	MS
Silicon			100	0	MS
Silver			0.30	0.027	MS
Sodium			100	2.9	MS
Strontium			50	0	MS

Comments:

FORM X - IN I]

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Thallium			0.40	0.021	MS
Tin			50	0.033	MS
Titanium			10	0.072	MS
Vanadium			0.40	0.023	MS
Zinc			10	0.12	MS
Zirconium			10	0	MS

Comments:

FORM X - IN I1

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:29:40**
Prep End Date: **8/23/2011 3:00:00 P**

Prep Batch ID: **23324** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23324		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
MB-23324		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
1108425-007C	IOA-SS-EU09-0002	Soil			1.52	0	0	50	32.895	8/23/2011	8/23/2011
1108425-007CMS		Soil			1.2	0	0	50	41.667	8/23/2011	8/23/2011
1108425-007CMSD		Soil			1.22	0	0	50	40.984	8/23/2011	8/23/2011
1108425-001C	IOA-SS-EU01-0002	Soil			1.62	0	0	50	30.864	8/23/2011	8/23/2011
1108425-002C	IOA-SS-EU03-0002	Soil			1.76	0	0	50	28.409	8/23/2011	8/23/2011
1108425-003C	IOA-SS-DUP01-08091	Soil			1.23	0	0	50	40.650	8/23/2011	8/23/2011
1108425-004B	IOA-SS-EU07-0002	Soil			1.46	0	0	50	34.247	8/23/2011	8/23/2011
1108425-005C	IOA-SS-EU02-0002	Soil			1.47	0	0	50	34.014	8/23/2011	8/23/2011
1108425-006C	IOA-SS-EU04-0002	Soil			1.48	0	0	50	33.784	8/23/2011	8/23/2011
1108425-008C	IOA-SS-EU06-0002	Soil			1.7	0	0	50	29.412	8/23/2011	8/23/2011
1108425-009A	IOA-SS-EU14-0002	Soil			1.38	0	0	50	36.232	8/23/2011	8/23/2011
1108425-010C	IOA-SS-EU13-0002	Soil			1.78	0	0	50	28.090	8/23/2011	8/23/2011
1108425-011C	IOA-SS-EU17-0002	Soil			1.62	0	0	50	30.864	8/23/2011	8/23/2011
1108425-013C	IOA-SS-EU31-0002	Soil			1.45	0	0	50	34.483	8/23/2011	8/23/2011
1108425-014C	IOA-SS-EU40-0002	Soil			1.54	0	0	50	32.468	8/23/2011	8/23/2011
1108425-015B	IOA-SS-EU27-0002	Soil			1.48	0	0	50	33.784	8/23/2011	8/23/2011
1108425-016C	IOA-SS-DUP02-08101	Soil			1.4	0	0	50	35.714	8/23/2011	8/23/2011
1108425-017C	IOA-SS-EU29-0002	Soil			1.24	0	0	50	40.323	8/23/2011	8/23/2011
1108425-018C	IOA-SS-EU16-0002	Soil			1.48	0	0	50	33.784	8/23/2011	8/23/2011
1108425-019C	IOA-SS-EU30-0002	Soil			1.25	0	0	50	40.000	8/23/2011	8/23/2011
1108425-020C	IOA-SS-EU41-0002	Soil			1.49	0	0	50	33.557	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Reagent	1079	1:1Nitric Acid	982	Container-1 of 1	0	mL
Chemical	633	Hydrogen Peroxide 30%w/v	2822	Container-1 of 1	0	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:29:40**
Prep End Date: **8/23/2011 3:00:00 P**

Prep Batch ID: **23324** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Prep Factor Units: **mL / g**

Initial Temp: **98 °C** Final Temp **98 °C**

Chemical	697	nitric acid	3153	Container-6 of 8	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-3A CATIONS 10000UG/ML	Opened	LCS	5272	Container-1 of 1	0.05	mL
AAC-STD-3A CATIONS 10000UG/ML	Opened	MS	5272	Container-1 of 1	0.05	mL
AAC-STD-3A CATIONS 10000UG/ML	Opened	MSD	5272	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	LCS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MSD	5270	Container-1 of 1	0.05	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:49:28**
Prep End Date: **8/23/2011 1:00:00 P**

Prep Batch ID: **23325** Prep Code: **SW_3050-SA** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23325		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
MB-23325		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
1108425-007C	IOA-SS-EU09-0002	Soil			1.84	0	0	50	27.174	8/23/2011	8/23/2011
1108425-007CMS		Soil			1.35	0	0	50	37.037	8/23/2011	8/23/2011
1108425-007CMSD		Soil			1.48	0	0	50	33.784	8/23/2011	8/23/2011
1108425-001C	IOA-SS-EU01-0002	Soil			1.39	0	0	50	35.971	8/23/2011	8/23/2011
1108425-002C	IOA-SS-EU03-0002	Soil			1.69	0	0	50	29.586	8/23/2011	8/23/2011
1108425-003C	IOA-SS-DUP01-08091	Soil			1.5	0	0	50	33.333	8/23/2011	8/23/2011
1108425-004B	IOA-SS-EU07-0002	Soil			1.84	0	0	50	27.174	8/23/2011	8/23/2011
1108425-005C	IOA-SS-EU02-0002	Soil			1.63	0	0	50	30.675	8/23/2011	8/23/2011
1108425-006C	IOA-SS-EU04-0002	Soil			1.65	0	0	50	30.303	8/23/2011	8/23/2011
1108425-008C	IOA-SS-EU06-0002	Soil			1.11	0	0	50	45.045	8/23/2011	8/23/2011
1108425-009A	IOA-SS-EU14-0002	Soil			1.21	0	0	50	41.322	8/23/2011	8/23/2011
1108425-010C	IOA-SS-EU13-0002	Soil			1.31	0	0	50	38.168	8/23/2011	8/23/2011
1108425-011C	IOA-SS-EU17-0002	Soil			1.58	0	0	50	31.646	8/23/2011	8/23/2011
1108425-013C	IOA-SS-EU31-0002	Soil			1.91	0	0	50	26.178	8/23/2011	8/23/2011
1108425-014C	IOA-SS-EU40-0002	Soil			1.56	0	0	50	32.051	8/23/2011	8/23/2011
1108425-015B	IOA-SS-EU27-0002	Soil			1.1	0	0	50	45.455	8/23/2011	8/23/2011
1108425-016C	IOA-SS-DUP02-08101	Soil			1.61	0	0	50	31.056	8/23/2011	8/23/2011
1108425-017C	IOA-SS-EU29-0002	Soil			1.19	0	0	50	42.017	8/23/2011	8/23/2011
1108425-018C	IOA-SS-EU16-0002	Soil			1.64	0	0	50	30.488	8/23/2011	8/23/2011
1108425-019C	IOA-SS-EU30-0002	Soil			1.17	0	0	50	42.735	8/23/2011	8/23/2011
1108425-020C	IOA-SS-EU41-0002	Soil			1.43	0	0	50	34.965	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	697	nitric acid	3153	Container-6 of 8	0	mL
Chemical	698	Hydrochloric acid	3156	Container-1 of 6	0	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:49:28**
Prep End Date: **8/23/2011 1:00:00 P**

Prep Batch ID: **23325** Prep Code: **SW_3050-SA** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units:
mL / g

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	LCS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MSD	5270	Container-1 of 1	0.05	mL

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\082711\
Report Date/Time: Saturday, August 27, 2011 14:45:03

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	Blank	08:43:19 Sat 27-Aug-11	Blank	C:\Elandata\DataSet\082711\Blank.001	
	Standard 1	08:45:19 Sat 27-Aug-11	Standard #1	C:\Elandata\DataSet\082711\Standard 1.002	
SW_6020S,IC	ICV-01	08:50:37 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICV-01.003	
SW_6020S,IC	ICB-01	08:56:13 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICB-01.004	
SW_6020S,CF	CRQL	09:04:49 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL.005	
SW_6020S,IC	ICSA	09:07:33 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICSA.006	
SW_6020S,IC	ICSAB	09:09:51 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICSAB.007	
SW_6020S,C	CCV	09:27:31 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV .008	
SW_6020S,C	CCB	09:30:42 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB .009	
SW_6020S,M	MB-23324	09:44:53 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\MB-23324.010	
SW_6020S,L	LCS-23324	09:46:29 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,M	1108425-007CM	09:50:40 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	13
SW_6020S,SA	1108425-007C	09:54:00 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,M	1108425-007CM	09:57:19 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	;
SW_6020S,SA	1108425-001C	09:59:43 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-002C	10:01:19 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-003C	10:02:56 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-004B	10:05:00 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SD	1108425-007CS	10:07:21 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X100	)
SW_6020S,C	CCV-01	10:10:55 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-01.021	
SW_6020S,C	CCB-01	10:13:12 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-01.022	
SW_6020S,SA	1108425-005C	10:15:58 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-006C	10:17:35 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-008C	10:19:13 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-009A	10:20:48 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-010C	10:22:24 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-011C	10:24:00 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-013C	10:25:36 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-014C	10:27:12 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-015B	10:28:48 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,C	CCV-02	10:40:11 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-02.032	
SW_6020S,C	CCB-02	10:43:24 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-02.033	
SW_6020S,SA	1108425-016C	10:45:27 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-017C	10:47:03 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-018C	10:48:40 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-019C	10:50:17 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA	1108425-020C	10:51:54 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,C	CCV-03	10:53:31 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-03.039	
SW_6020S,C	CCB-03	10:56:05 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-03.040	
SW_6020S,CF	CRQL-03	10:58:07 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL-03.041	
SW_6020S,C	CCV-04	11:09:25 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-04.042	
SW_6020S,C	CCB-04	11:14:29 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-04.043	
SW_6020S,M	MB-23324	11:15:39 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\MB-23324.044	
SW_6020S,L	LCS-23324	11:47:01 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	

SW_6020S,MS1108425-007CM	11:48:11 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	3
SW_6020S,MS1108425-007CM	11:49:45 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	47
SW_6020S,SA1108425-007C	11:51:20 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SD1108425-007CS	11:53:49 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X2000	1
SW_6020S,SA1108425-001C	12:01:32 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-002C	12:02:22 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-003C	12:03:12 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-004B	12:04:03 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,CCCCV-05	12:06:38 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-05.054	
SW_6020S,CCCCB-05	12:11:10 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-05.055	
SW_6020S,SA1108425-005C	12:12:01 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-006C	12:12:51 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-008C	12:13:42 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-009A	12:14:31 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-010C	12:15:21 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-011C	12:16:10 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-013C	12:17:00 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-014C	12:17:50 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-015B	12:18:40 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,CCCCV-06	12:20:25 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-06.065	
SW_6020S,CCCCB-06	12:24:39 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-06.066	
SW_6020S,SA1108425-016C	12:25:56 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-017C	12:26:46 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-018C	12:27:36 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-019C	12:28:27 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,SA1108425-020C	12:29:18 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X400	
SW_6020S,CCCCV-07	12:33:08 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-07.072	
SW_6020S,CCCCB-07	12:35:19 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-07.073	
SW_6020S,CFCRQL-07	12:53:56 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL-07.074	
SW_6020S,CFCRQL-07-7	12:55:10 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL-07-7.075	
SW_6020S,SACHK.STD	13:02:15 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CHK.STD.076	
Blank	13:15:56 Sat 27-Aug-11	Blank	C:\Elandata\DataSet\082711\Blank.077	
Standard 1	13:16:46 Sat 27-Aug-11	Standard #1	C:\Elandata\DataSet\082711\Standard 1.078	
SW_6020S,ICICV-02	13:17:37 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICV-02.079	
SW_6020S,ICICB-02	13:21:39 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICB-02.080	
SW_6020S,CFCRQL	13:22:31 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL.081	
SW_6020S,ICICSA	13:24:11 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICSA.082	
SW_6020S,ICICSAB	13:25:01 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\ICSAB.083	
SW_6020S,CCCCV	13:26:42 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV .084	
SW_6020S,CCCCB	13:29:45 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB .085	
SW_6020S,MBMB-23324	13:36:57 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\MB-23324.086	
SW_6020S,LCLCS-23324	13:37:46 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,MS1108425-007CM	13:39:43 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X100	1
SW_6020S,MS1108425-007CM	13:42:02 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X100	39
SW_6020S,SA1108425-007C	13:51:35 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-001C	13:52:44 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-002C	13:53:34 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-003C	13:54:25 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-004B	13:55:15 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SD1108425-007CS	14:11:05 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X100	1
SW_6020S,CCCCV-08	14:13:52 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-08.096	
SW_6020S,CCCCB-08	14:15:43 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-08.097	
SW_6020S,SA1108425-005C	14:17:18 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-006C	14:18:09 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-008C	14:19:00 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	
SW_6020S,SA1108425-009A	14:19:49 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20	

SW_6020S,SA1108425-010C	14:20:38 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-011C	14:21:28 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-013C	14:22:17 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-014C	14:23:07 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-015B	14:23:57 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,CCCCV-09	14:24:48 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-09.107
SW_6020S,CCCCB-09	14:28:46 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-09.108
SW_6020S,SA1108425-016C	14:29:47 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-017C	14:30:37 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-018C	14:31:27 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-019C	14:32:18 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,SA1108425-020C	14:33:09 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\0827X20
SW_6020S,CCCCV-10	14:33:59 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCV-10.114
SW_6020S,CCCCB-10	14:35:47 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CCB-10.115
SW_6020S,CFCRQL-10	14:36:59 Sat 27-Aug-11	Sample	C:\Elandata\DataSet\082711\CRQL-10.116

ANALYSIS RUN LOG

Lab Name: RTI Laboratories Workorder No.: 1108425

Lab Code: GLEN01 Method: MS (Total)

Instrument ID Number: ICPMS3 Test Code: SW 6020S

Start Date: 08/27/2011 End Date: 08/27/2011

EPA Sample No.	D/F	Time	% R	Analytes																		
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	0850		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0856		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0904		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0907		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0909		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV	1.00	0927		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	0930		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	0944				X	X	X	X		X	X	X		X				X		X		
LCSS	20.00	0946				X	X	X	X		X	X	X		X				X		X		
U09-0002SD	20.00	0950				X	X	X	X		X	X	X		X				X		X		
-EU09-0002	20.00	0954				X	X	X	X		X	X	X		X				X		X		
EU09-0002S	20.00	0957				X	X	X	X		X	X	X		X				X		X		
-EU01-0002	20.00	0959				X	X	X	X		X	X	X		X				X		X		
-EU03-0002	20.00	1001				X	X	X	X		X	X	X		X				X		X		
P01-080911	20.00	1002				X	X	X	X		X	X	X		X				X		X		
-EU07-0002	20.00	1005				X	X	X	X		X	X	X		X				X		X		
EU09-0002L	100.00	1007				X	X				X	X	X		X				X				
ZZZZZZ CCV	1.00	1010		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1013		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
-EU02-0002	20.00	1015				X	X	X	X		X	X	X		X				X		X		
-EU04-0002	20.00	1017				X	X	X	X		X	X	X		X				X		X		
-EU06-0002	20.00	1019				X	X	X	X		X	X	X		X				X		X		
-EU14-0002	20.00	1020				X	X	X	X		X	X	X		X				X		X		
-EU13-0002	20.00	1022				X	X	X	X		X	X	X		X				X		X		
-EU17-0002	20.00	1024				X	X	X	X		X	X	X		X				X		X		
-EU31-0002	20.00	1025				X	X	X	X		X	X	X		X				X		X		
-EU40-0002	20.00	1027				X	X	X	X		X	X	X		X				X		X		
-EU27-0002	20.00	1028				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ CCV	1.00	1040		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1043		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
P02-081011	20.00	1045				X	X	X	X		X	X	X		X				X		X		
-EU29-0002	20.00	1047				X	X	X	X		X	X	X		X				X		X		
-EU16-0002	20.00	1048				X	X	X	X		X	X	X		X				X		X		
-EU30-0002	20.00	1050				X	X	X	X		X	X	X		X				X		X		
-EU41-0002	20.00	1051				X	X	X	X		X	X	X		X				X		X		

FORM XIV - IN

	T L	V	Z N	C N
:	X	X	X	
:	X	X	X	
:	X	X	X	
:	X	X	X	
:	X	X	X	
:	X	X	X	
:	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
		X	X	
:	X	X	X	
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	X	X	X	
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	X	X	X	
	X	X	X	
	X	X	X	
:	X		X	
:	X		X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	

ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories | Workorder No.: 1108425

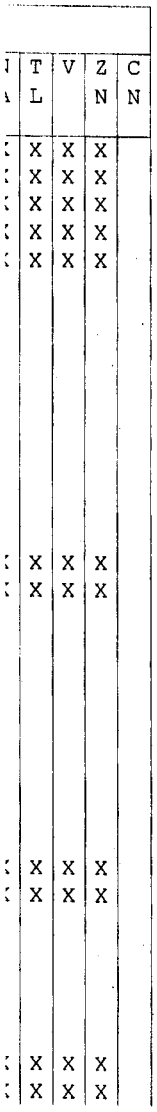
Lab Code: GLEN01 | Method: MS (Total)

Instrument ID Number: ICPMS3 | Test Code: SW 6020S

Start Date: 08/27/2011 | End Date: 08/27/2011

EPA Sample No.	D/F	Time	% R	Analytes																		
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ CCV	1.00	1053		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1056		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV	1.00	1109		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1114		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1115		X										X			X						
LCSS	20.00	1147		X										X			X						
EU09-0002S	400.00	1148		X										X			X						
U09-0002SD	400.00	1149		X										X			X						
-EU09-0002	400.00	1151		X										X			X						
EU09-0002L	2000.00	1153		X										X			X						
-EU01-0002	400.00	1201		X										X			X						
-EU03-0002	400.00	1202		X										X			X						
P01-080911	400.00	1203		X										X			X						
-EU07-0002	400.00	1204		X										X			X						
ZZZZZZ CCV	1.00	1206		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1211		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
-EU02-0002	400.00	1212		X										X			X						
-EU04-0002	400.00	1212		X										X			X						
-EU06-0002	400.00	1213		X										X			X						
-EU14-0002	400.00	1214		X										X			X						
-EU13-0002	400.00	1215		X										X			X						
-EU17-0002	400.00	1216		X										X			X						
-EU31-0002	400.00	1217		X										X			X						
-EU40-0002	400.00	1217		X										X			X						
-EU27-0002	400.00	1218		X										X			X						
ZZZZZZ CCV	1.00	1220		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1224		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
P02-081011	400.00	1225		X										X			X						
-EU29-0002	400.00	1226		X										X			X						
-EU16-0002	400.00	1227		X										X			X						
-EU30-0002	400.00	1228		X										X			X						
-EU41-0002	400.00	1229		X										X			X						
ZZZZZZ CCV	1.00	1233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1235		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X

FORM XIV - IN



	T L	V	Z N	C N
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	

ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108425

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

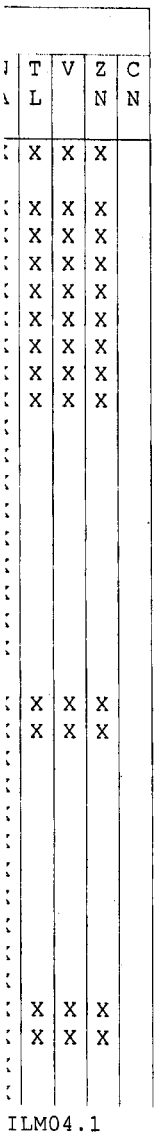
Test Code: SW 6020S

Start Date: 08/27/2011

End Date: 08/27/2011

EPA Sample No.	D/F	Time	% R	Analytes																		
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	1253		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1255												X									
ZZZZZZ	1.00	1302		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ ICV	1.00	1317		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ ICB	1.00	1321		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1322		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1324		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1325		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV	1.00	1326		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1329		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1336								X						X				X			X
LCSS	20.00	1337								X						X				X			X
EU09-0002S	100.00	1339								X						X				X			X
U09-0002SD	100.00	1342								X						X				X			X
-EU09-0002	20.00	1351								X						X				X			X
-EU01-0002	20.00	1352								X						X				X			X
-EU03-0002	20.00	1353								X						X				X			X
P01-080911	20.00	1354								X						X				X			X
-EU07-0002	20.00	1355								X						X				X			X
EU09-0002L	100.00	1411								X						X				X			
ZZZZZZ CCV	1.00	1413		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1415		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
-EU02-0002	20.00	1417								X						X				X			X
-EU04-0002	20.00	1418								X						X				X			X
-EU06-0002	20.00	1419								X						X				X			X
-EU14-0002	20.00	1419								X						X				X			X
-EU13-0002	20.00	1420								X						X				X			X
-EU17-0002	20.00	1421								X						X				X			X
-EU31-0002	20.00	1422								X						X				X			X
-EU40-0002	20.00	1423								X						X				X			X
-EU27-0002	20.00	1423								X						X				X			X
ZZZZZZ CCV	1.00	1424		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1428		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
P02-081011	20.00	1429								X						X				X			X
-EU29-0002	20.00	1430								X						X				X			X

FORM XIV - IN



ILM04.1

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108425

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

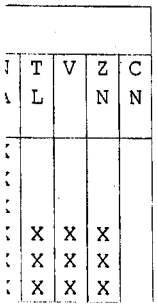
Test Code: SW 6020S

Start Date: 08/27/2011

End Date: 08/27/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
-EU16-0002	20.00	1431								X						X				X			X
-EU30-0002	20.00	1432								X						X				X			X
-EU41-0002	20.00	1433								X						X				X			X
ZZZZZZ CCV	1.00	1433		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1435		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1436		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X

FORM XIV - IN



ILM04.1

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\090711\
Report Date/Time: Wednesday, September 07, 2011 21:01:43

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description	
	Blank	08:53:57 Wed 07-Sep-11	Blank	C:\Elandata\DataSet\090711\Blank.001		
	Standard 1	08:55:52 Wed 07-Sep-11	Standard #1	C:\Elandata\DataSet\090711\Standard 1.002		
SW_6020S,IC	ICV-01	08:58:42 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICV-01.003		
SW_6020S,IC	ICB-01	09:01:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICB-01.004		
SW_6020S,CF	CRQL-6A	09:04:03 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-6A.005		
SW_6020S,IC	ICSA	09:06:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSA.006		
SW_6020S,IC	ICSAB	09:08:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSAB.007		
SW_6020S,C	CCV	09:12:28 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV .008		
SW_6020S,C	CCB	09:15:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB .009		
SW_6020S,LC	LCS-23326	09:36:04 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,M	1108447-005CM	09:38:29 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		I
SW_6020S,M	1108447-005CM	09:40:53 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		12
SW_6020S,M	MB-23326	09:43:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23326.013		
SW_6020S,SA	1108447-005C	09:45:55 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-001C	09:47:31 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-002C	09:49:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-003C	09:51:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-004C	09:52:57 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,M	1108447-005CM	10:00:52 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		19
SW_6020S,C	CCV-01	10:09:26 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-01.020		
SW_6020S,C	CCB-01	10:11:59 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-01.021		
SW_6020S,SA	1108447-006C	10:13:36 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-007C	10:15:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-008C	10:16:50 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-009C	10:18:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-010C	10:20:01 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-011C	10:21:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-012C	10:23:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-013C	10:24:49 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-014C	10:26:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,C	CCV-02	10:28:02 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-02.031		
SW_6020S,C	CCB-02	10:32:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-02.032		
SW_6020S,CF	CRQL-02	10:55:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-02.034		
SW_6020S,SA	CHK.STD	10:58:38 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CHK.STD.035		
SW_6020S,C	CCV-03	11:07:56 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-03.036		
SW_6020S,C	CCB-03	11:18:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-03.037		
SW_6020S,M	MB-23326	11:19:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23326.038		
SW_6020S,LC	LCS-23326	11:20:40 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,M	1108447-005CM	11:21:30 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		)
SW_6020S,M	1108447-005CM	11:22:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		41
SW_6020S,SA	1108447-005C	11:24:02 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-001C	11:24:52 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-002C	11:25:42 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-003C	11:26:32 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		

SW_6020A,SA1108B81-014D	16:43:43 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020A,CCCCV-16	16:44:27 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-16.161	
SW_6020A,CCCCB-16	16:49:39 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-16.162	
SW_6020A,CFCRQL-16	16:50:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-16.163	
SW_6020S,CCCCV-17	17:11:06 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-17.164	
SW_6020S,CCCCB-17	17:12:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-17.165	
ASTM-D6357,IMB-23497	17:14:27 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23497.166	
ASTM-D6357,ILCS-23497	17:15:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
ASTM-D6357,I1108B22-001AM	17:19:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	3
ASTM-D6357,I1108B22-001AM	17:20:55 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	39
ASTM-D6357,I1108B22-001A	17:23:07 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	
ASTM-D6357,I1108B22-001AS	18:08:10 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10000	
SW_6020S,CCCCV-18	18:11:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-18.172	
SW_6020S,CCCCB-18	18:14:26 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-18.173	
SW_6020S,CFCRQL-18	18:36:08 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-18.174	
Blank	18:47:13 Wed 07-Sep-11	Blank	C:\Elandata\DataSet\090711\Blank.175	
Standard 1	18:48:00 Wed 07-Sep-11	Standard #1	C:\Elandata\DataSet\090711\Standard 1.176	
SW_6020S-SAICV-02	18:49:22 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICV-02.177	
SW_6020S-SAICB-02	18:53:12 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICB-02.178	
SW_6020S-SACRQL	18:54:00 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL.179	
SW_6020S-SAICSA	18:55:10 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSA.180	
SW_6020S-SAICSAB	18:55:57 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSAB.181	
SW_6020S-SACCV	18:56:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV.182	
SW_6020S-SACCB	19:01:14 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB.183	
SW_6020S-SAMB-23325	19:04:05 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23325.184	
SW_6020S-SALCS-23325	19:11:31 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S-SA1108425-007CM	19:12:18 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	3
SW_6020S-SA1108425-007CM	19:13:04 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	37
SW_6020S-SA1108425-007C	19:16:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-001C	19:17:28 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-002C	19:18:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-003C	19:19:02 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-004B	19:19:49 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-005C	19:20:36 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SACCV-19	19:21:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-19.194	
SW_6020S-SACCB-19	19:26:21 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-19.195	
SW_6020S-SA1108425-006C	19:27:08 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-008C	19:27:56 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-009A	19:28:42 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-010C	19:29:28 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-011C	19:30:14 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-013C	19:31:01 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-014C	19:31:47 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-015B	19:32:34 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-016C	19:33:21 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SACCV-20	19:34:08 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-20.205	
SW_6020S-SACCB-20	19:37:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-20.206	
SW_6020S-SA1108425-017C	19:38:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-018C	19:39:00 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-019C	19:39:47 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SA1108425-020C	19:40:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S-SACCV-21	19:41:22 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-21.211	
SW_6020S-SACCB-21	19:45:08 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-21.212	
SW_6020S-SACRQL-21	19:45:56 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-21.213	
SW_6020A-SAMB-23524	19:47:23 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23524.214	
SW_6020A-SALCS-23524	19:48:16 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	

ANALYSIS RUN LOG

Lab Name: RTI Laboratories | Workorder No.: 1108425

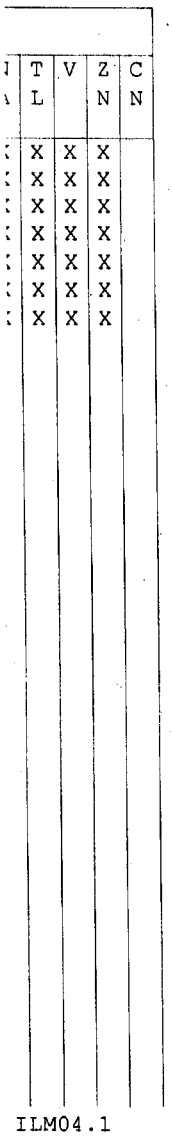
Lab Code: GLEN01 | Method: MS (Total)

Instrument ID Number: ICPMS3 | Test Code: SW 6020S-SA

Start Date: 09/07/2011 | End Date: 09/07/2011

EPA Sample No.	D/F	Time	% R	Analytes																		
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	A
ZZZZZZ ICV	1.00	0858		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ ICB	1.00	0901		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0904		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0906		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0908		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV	1.00	0912		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	0915		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ ICV	1.00	1849			X																	X	
ZZZZZZ ICB	1.00	1853			X																	X	
ZZZZZZ	1.00	1854			X																	X	
ZZZZZZ	1.00	1855			X																	X	
ZZZZZZ	1.00	1855			X																	X	
ZZZZZZ CCV	1.00	1856			X																	X	
ZZZZZZ CCB	1.00	1901			X																	X	
PBS	1.00	1904			X																	X	
LCSS	20.00	1911			X																	X	
EU09-0002S	20.00	1912			X																	X	
U09-0002SD	20.00	1913			X																	X	
-EU09-0002	10.00	1916			X																	X	
-EU01-0002	10.00	1917			X																	X	
-EU03-0002	10.00	1918			X																	X	
P01-080911	10.00	1919			X																	X	
-EU07-0002	10.00	1919			X																	X	
-EU02-0002	10.00	1920			X																	X	
ZZZZZZ CCV	1.00	1921			X																	X	
ZZZZZZ CCB	1.00	1926			X																	X	
-EU04-0002	10.00	1927			X																	X	
-EU06-0002	10.00	1927			X																	X	
-EU14-0002	10.00	1928			X																	X	
-EU13-0002	10.00	1929			X																	X	
-EU17-0002	10.00	1930			X																	X	
-EU31-0002	10.00	1931			X																	X	
-EU40-0002	10.00	1931			X																	X	
-EU27-0002	10.00	1932			X																	X	
P02-081011	10.00	1933			X																	X	

FORM XIV - IN



ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108425

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

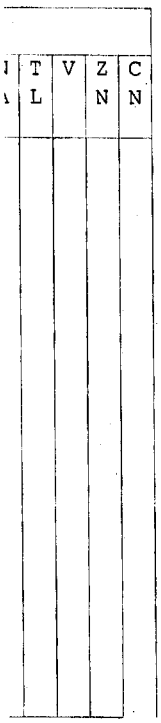
Test Code: SW 6020S-SA

Start Date: 09/07/2011

End Date: 09/07/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N P
ZZZZZZ CCV	1.00	1934			X																X	
ZZZZZZ CCB	1.00	1937			X																X	
-EU29-0002	10.00	1938			X																X	
-EU16-0002	10.00	1939			X																X	
-EU30-0002	10.00	1939			X																X	
-EU41-0002	10.00	1940			X																X	
ZZZZZZ CCV	1.00	1941			X																X	
ZZZZZZ CCB	1.00	1945			X																X	
ZZZZZZ	1.00	1945			X																X	
PBW	1.00	1947			X																X	
LCSW	20.00	1948			X																X	
ZZZZZZ	20.00	1949			X																X	
ZZZZZZ	20.00	1950			X																X	
ZZZZZZ	5.00	1952			X																X	
ZZZZZZ	5.00	1953																			X	
ZZZZZZ	5.00	1954																			X	
ZZZZZZ	5.00	1954																			X	
ZZZZZZ	5.00	1955			X																X	
CCV	1.00	1956			X																X	
CCB	1.00	1959			X																X	
ZZZZZZ	1.00	2000			X																X	

FORM XIV - IN



ILM04.1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108425**
17-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_7471S**

Sample ID: **CCV1**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42404**		
Client ID: **CCV**	Batch ID: **R42404**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821156**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	96.6	90	110				

Sample ID: **CCV2**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42404**		
Client ID: **CCV**	Batch ID: **R42404**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821168**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.0	30	2.000	0	97.6	90	110				

Sample ID: **CCV3**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42404**		
Client ID: **CCV**	Batch ID: **R42404**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821180**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.0	30	2.000	0	101	90	110				

Sample ID: **CCV4**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42404**		
Client ID: **CCV**	Batch ID: **R42404**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821189**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	97.4	90	110				

Sample ID: **CCV1**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821301**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	95.4	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108425**
17-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_7471S**

Sample ID: **CCV2**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:	RunNo: **42418**
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**	SeqNo: **821314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	94.2	90	110				

Sample ID: **CCV5**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:	RunNo: **42418**
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**	SeqNo: **821350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.0	30	2.000	0	102	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source:

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS True	Found	%R	CRDL Standard for ICP Initial True	Found	%R	Final Found	%R
Mercury	0.0	0.00	97.5					
Mercury	0.0	0.00	100.5					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source:

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.0	0.00	98.0					
Mercury	0.0	0.00	98.0					

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42404 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23321 Prepa-ration Blank	C
Mercury	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.036	U

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42404 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23321 Prepa-ration Blank	C
Mercury			0.00070	U	0.00070	U	0.00070	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42404 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23321 Prepa-ration Blank	C
Mercury			0.00070	U						

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23335 Prepa-ration Blank	C
Mercury	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.036	U

FORM III - IN

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23335 Prepa-ration Blank	C
Mercury			0.00070	U	0.00070	U	0.00070	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23335 Prepa-ration Blank	C
Mercury			0.00070	U	0.00070	U	0.00070	U		

FORM III - IN

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU06-0002S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 86.0

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0678		0.0073	J	0.06	95.4		AV

Comments:

FORM V (Part 1) - IN ILM04.1

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU06-0002SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108425

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 86.0

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0645		0.0073	J	0.06	91.9		AV

Comments:

5C

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: SAS No.: SDG No.: 1108425

Matrix Spike - Client SampID IOA-SS-EU06-0002SD Level:(low/med) LOW

COMPOUND	SPIKE ADDED MG/KG	MSD CONCENTRATION MG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Mercury	0.06226	0.06450	91.9	4.94	20	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: out of 0 outside limits

Spike Recovery: out of 0 outside limits

COMMENTS:

FORM V

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Mercury				0.1	0.1		93.7

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108425

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Mercury				0.1	0.1		92.3

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 9:32:23**
Prep End Date: **8/23/2011 11:00:00**

Prep Batch ID: **23321** Prep Code: **SW_7471PRS** Technician: **Vivienne Dragescu**

Initial Temp: **95 °C** Final Temp **95 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
1108425-007C	IOA-SS-EU09-0002	Soil			0.6	0	0	30	50.000	8/23/2011	8/23/2011
1108425-007CMS		Soil			0.67	0	0	30	44.776	8/23/2011	8/23/2011
1108425-007CMSD		Soil			0.63	0	0	30	47.619	8/23/2011	8/23/2011
1108425-001C	IOA-SS-EU01-0002	Soil			0.62	0	0	30	48.387	8/23/2011	8/23/2011
1108425-002C	IOA-SS-EU03-0002	Soil			0.5	0	0	30	60.000	8/23/2011	8/23/2011
1108425-003C	IOA-SS-DUP01-08091	Soil			0.55	0	0	30	54.545	8/23/2011	8/23/2011
1108425-004B	IOA-SS-EU07-0002	Soil			0.74	0	0	30	40.541	8/23/2011	8/23/2011
1108425-005C	IOA-SS-EU02-0002	Soil			0.7	0	0	30	42.857	8/23/2011	8/23/2011
1108425-006C	IOA-SS-EU04-0002	Soil			0.72	0	0	30	41.667	8/23/2011	8/23/2011
1108425-010C	IOA-SS-EU13-0002	Soil			0.69	0	0	30	43.478	8/23/2011	8/23/2011
1108425-011C	IOA-SS-EU17-0002	Soil			0.53	0	0	30	56.604	8/23/2011	8/23/2011
1108425-013C	IOA-SS-EU31-0002	Soil			0.52	0	0	30	57.692	8/23/2011	8/23/2011
1108425-008C	IOA-SS-EU06-0002	Soil			0.56	0	0	30	53.571	8/23/2011	8/23/2011
1108425-008CMS		Soil			0.55	0	0	30	54.545	8/23/2011	8/23/2011
1108425-008CMSD		Soil			0.56	0	0	30	53.571	8/23/2011	8/23/2011
1108425-014C	IOA-SS-EU40-0002	Soil			0.61	0	0	30	49.180	8/23/2011	8/23/2011
1108425-015B	IOA-SS-EU27-0002	Soil			0.52	0	0	30	57.692	8/23/2011	8/23/2011
1108425-016C	IOA-SS-DUP02-08101	Soil			0.64	0	0	30	46.875	8/23/2011	8/23/2011
1108425-017C	IOA-SS-EU29-0002	Soil			0.54	0	0	30	55.556	8/23/2011	8/23/2011
1108425-018C	IOA-SS-EU16-0002	Soil			0.5	0	0	30	60.000	8/23/2011	8/23/2011
1108425-019C	IOA-SS-EU30-0002	Soil			0.61	0	0	30	49.180	8/23/2011	8/23/2011
1108425-020C	IOA-SS-EU41-0002	Soil			0.64	0	0	30	46.875	8/23/2011	8/23/2011
1108447-001C	IOA-SS-EU47-0002	Soil			0.62	0	0	30	48.387	8/23/2011	8/23/2011
1108687-014B	A-14	Soil			0.53	0	0	30	56.604	8/23/2011	8/23/2011
LCS-23321		Solid			0.5	0	0	30	60.000	8/23/2011	8/23/2011
MB-23321		Solid			0.5	0	0	30	60.000	8/23/2011	8/23/2011

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 9:32:23**
Prep End Date: **8/23/2011 11:00:00**

Prep Factor Units: **mL / g**

Prep Batch ID: **23321** Prep Code: **SW_7471PRS** Technician: **Vivienne Dragescu**

Initial Temp: **95 °C** Final Temp **95 °C**

ckstd 2.0ppb	1	0	0	1	1.000	8/23/2011	8/23/2011
crql 0.2ppb	1	0	0	1	1.000	8/23/2011	8/23/2011
0.2ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011
0.5ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011
1.0ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011
2.0ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011
5.0ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011
10.0ppb std	1	0	0	1	1.000	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Reagent	1081	Aqua Regia	984	Container-1 of 1	0	mL
Reagent	1124	5% KMnO4	1036	Container-1 of 1	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
1PPM STD	Opened	LCS	6184	Container-1 of 1	0.03	mL
1PPM STD	Opened	MS	6184	Container-1 of 1	0.03	mL
1PPM STD	Opened	MSD	6184	Container-1 of 1	0.03	mL
HG CALIBRATION STD	Opened	CALSTD	5229	Container-1 of 1	0.1	mL
HG SSSTD	Opened	CCV	6224	Container-1 of 1	0.06	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/24/2011 7:38:49**
Prep End Date: **8/24/2011 9:30:00**

Prep Batch ID: **23335** Prep Code: **SW_7471PRS** Technician: **Vivienne Dragescu**

Initial Temp: **95 °C** Final Temp **95 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
1108447-005C	IOA-SS-EU35-0002	Soil			0.61	0	0	30	49.180	8/23/2011	8/24/2011
1108447-005CMS		Soil			0.63	0	0	30	47.619	8/23/2011	8/24/2011
1108447-005CMSD		Soil			0.61	0	0	30	49.180	8/23/2011	8/24/2011
1108425-009A	IOA-SS-EU14-0002	Soil			0.54	0	0	30	55.556	8/23/2011	8/24/2011
1108447-002C	IOA-SS-EU46-0002	Soil			0.63	0	0	30	47.619	8/23/2011	8/24/2011
1108447-003C	IOA-SS-EU36-0002	Soil			0.66	0	0	30	45.455	8/23/2011	8/24/2011
1108447-004C	IOA-SS-DUP03-08101	Soil			0.79	0	0	30	37.975	8/23/2011	8/24/2011
1108447-006C	IOA-SS-EU23-0002	Soil			0.64	0	0	30	46.875	8/23/2011	8/24/2011
1108447-007C	IOA-SS-EU45-0002	Soil			0.76	0	0	30	39.474	8/23/2011	8/24/2011
1108447-008C	IOA-SS-EU49-0002	Soil			0.51	0	0	30	58.824	8/23/2011	8/24/2011
1108447-009C	IOA-SS-EU48-0002	Soil			0.52	0	0	30	57.692	8/23/2011	8/24/2011
1108447-010C	IOA-SS-EU44-0002	Soil			0.65	0	0	30	46.154	8/23/2011	8/24/2011
1108447-011C	IOA-SS-EU43-0002	Soil			0.54	0	0	30	55.556	8/23/2011	8/24/2011
1108447-011CMS		Soil			0.53	0	0	30	56.604	8/23/2011	8/24/2011
1108447-011CMSD		Soil			0.54	0	0	30	55.556	8/23/2011	8/24/2011
1108447-012C	IOA-SS-EU42-0002	Soil			0.63	0	0	30	47.619	8/23/2011	8/24/2011
1108447-013C	IOA-SS-EU34-0002	Soil			0.77	0	0	30	38.961	8/23/2011	8/24/2011
1108447-014C	IOA-SS-EU33-0002	Soil			0.67	0	0	30	44.776	8/23/2011	8/24/2011
LCS-23335		Solid			0.5	0	0	30	60.000	8/23/2011	8/24/2011
MB-23335		Solid			0.5	0	0	30	60.000	8/23/2011	8/24/2011
ckstd 2.0ppb					1	0	0	1	1.000	8/24/2011	8/24/2011
crql 0.2ppb					1	0	0	1	1.000	8/24/2011	8/24/2011
0.2ppb std					1	0	0	1	1.000	8/24/2011	8/24/2011
0.5ppb std					1	0	0	1	1.000	8/24/2011	8/24/2011
1.0ppb std					1	0	0	1	1.000	8/24/2011	8/24/2011
2.0ppb std					1	0	0	1	1.000	8/24/2011	8/24/2011

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/24/2011 7:38:49**
Prep End Date: **8/24/2011 9:30:00**

Prep Batch ID: **23335** Prep Code: **SW_7471PRS** Technician: **Vivienne Dragescu**

Initial Temp: **95 °C** Final Temp **95 °C**

Prep Factor Units:
mL / g

5.0ppb std	1	0	0	1	1.000	8/24/2011	8/24/2011
10.0ppb std	1	0	0	1	1.000	8/24/2011	8/24/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Reagent	1081	Aqua Regia	984	Container-1 of 1	0	mL
Reagent	1124	5% KMnO4	1036	Container-1 of 1	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
1PPM STD	Opened	LCS	6184	Container-1 of 1	0.03	mL
1PPM STD	Opened	MS	6184	Container-1 of 1	0.03	mL
1PPM STD	Opened	MSD	6184	Container-1 of 1	0.03	mL
HG CALIBRATION STD	Opened	CALSTD	5229	Container-1 of 1	0.1	mL
HG SSSTD	Opened	CCV	6224	Container-1 of 1	0.06	mL

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108425

Lab Code: GLEN01

Method: AV (Total)

Instrument ID Number: HG2

Test Code: SW 7471S

Start Date: 08/24/2011

End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
ZZZZZZ	1.00	1130																X					
ZZZZZZ	1.00	1131																X					
ZZZZZZ	1.00	1132																X					
PBS	1.00	1134																X					
LCSS	1.00	1135																X					
-EU09-0002	1.00	1137																X					
EU09-0002S	1.00	1138																X					
U09-0002SD	1.00	1140																X					
-EU01-0002	1.00	1141																X					
-EU03-0002	1.00	1143																X					
P01-080911	1.00	1144																X					
-EU07-0002	1.00	1146																X					
ZZZZZZ	1.00	1147																X					
ZZZZZZ	1.00	1149																X					
-EU02-0002	1.00	1150																X					
-EU04-0002	1.00	1152																X					
-EU13-0002	1.00	1153																X					
-EU17-0002	1.00	1154																X					
-EU31-0002	1.00	1156																X					
-EU06-0002	1.00	1157																X					
EU06-0002S	1.00	1159																X					
U06-0002SD	1.00	1200																X					
-EU40-0002	1.00	1202																X					
-EU27-0002	1.00	1203																X					
ZZZZZZ	1.00	1205																X					
ZZZZZZ	1.00	1206																X					
P02-081011	1.00	1208																X					
-EU29-0002	1.00	1209																X					
-EU16-0002	1.00	1211																X					
-EU30-0002	1.00	1212																X					
-EU41-0002	1.00	1214																X					
ZZZZZZ	1.00	1215																X					
ZZZZZZ	1.00	1216																X					
ZZZZZZ	1.00	1220																X					
ZZZZZZ	1.00	1221																X					

FORM XIV - IN

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108425

Lab Code: GLEN01
Method: AV (Total)

Instrument ID Number: HG2
Test Code: SW 7471S

Start Date: 08/24/2011
End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
zzzzzz	1.00	1222																X					

FORM XIV - IN

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108425

Lab Code: GLEN01
Method: AV (Total)

Instrument ID Number: HG2
Test Code: SW 7471S

Start Date: 08/24/2011
End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	1326																X					
ZZZZZZ	1.00	1327																X					
ZZZZZZ	1.00	1328																X					
PBS	1.00	1330																X					
LCSS	1.00	1331																X					
ZZZZZZ	1.00	1333																X					
ZZZZZZ	1.00	1334																X					
ZZZZZZ	1.00	1336																X					
-EU14-0002	1.00	1337																X					
ZZZZZZ	1.00	1339																X					
ZZZZZZ	1.00	1340																X					
ZZZZZZ	1.00	1342																X					
ZZZZZZ	1.00	1343																X					
ZZZZZZ	1.00	1345																X					
ZZZZZZ	1.00	1346																X					
ZZZZZZ	1.00	1348																X					
ZZZZZZ	1.00	1349																X					
ZZZZZZ	1.00	1350																X					
ZZZZZZ	1.00	1352																X					
ZZZZZZ	1.00	1353																X					
ZZZZZZ	1.00	1355																X					
ZZZZZZ	1.00	1356																X					
ZZZZZZ	1.00	1358																X					
ZZZZZZ	1.00	1359																X					
ZZZZZZ	1.00	1401																X					
ZZZZZZ	1.00	1402																X					
ZZZZZZ	1.00	1404																X					
PBS	1.00	1428																X					
LCSS	1.00	1430																X					
ZZZZZZ	1.00	1431																X					
ZZZZZZ	1.00	1433																X					
ZZZZZZ	1.00	1434																X					
ZZZZZZ	1.00	1436																X					
ZZZZZZ	1.00	1437																X					
ZZZZZZ	1.00	1439																X					

FORM XIV - IN

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108425

Lab Code: GLEN01

Method: AV (Total)

Instrument ID Number: HG2

Test Code: SW 7471S

Start Date: 08/24/2011

End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
zzzzzz	1.00	1440																X					
zzzzzz	1.00	1441																X					
zzzzzz	1.00	1443																X					
zzzzzz	1.00	1444																X					
zzzzzz	1.00	1446																X					
zzzzzz	1.00	1447																X					
zzzzzz	1.00	1449																X					
zzzzzz	1.00	1450																X					
zzzzzz	1.00	1452																X					
zzzzzz	1.00	1453																X					
zzzzzz	1.00	1455																X					
zzzzzz	1.00	1456																X					
zzzzzz	1.00	1458																X					
zzzzzz	1.00	1459																X					
zzzzzz	1.00	1501																X					
zzzzzz	1.00	1502																X					
zzzzzz	1.00	1505																X					

FORM XIV - IN

TETRA TECH, INC **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4971W

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108425
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 19/ Soil: Metals

IOA-SS-DUP01-080911[1]	IOA-SS-DUP02-081011[2]	IOA-SS-EU01-0002
IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002
IOA-SS-EU06-0002	IOA-SS-EU07-0002	IOA-SS-EU09-0002
IOA-SS-EU13-0002	IOA-SS-EU14-0002	IOA-SS-EU16-0002
IOA-SS-EU17-0002	IOA-SS-EU27-0002	IOA-SS-EU29-0002
IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU40-0002
IOA-SS-EU41-0002		

[1]Field duplicate of IOA-SS-EU01-0002
[2]Field duplicate of IOA-SS-EU29-0002

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

Metals

The project goals with respect to accuracy were met for the metals data set with the following exceptions. Lead and manganese were qualified as estimated in all samples due to the high matrix spike recovery; results may be biased high. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

Calcium was qualified as estimated in all samples due to the high matrix spike recovery; results may be biased high. Magnesium was qualified as estimated in all samples due to the low matrix spike recovery; results may be biased low. The data usability is not impacted since there are no project screening limits established for these analytes. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project screening limits were evaluated for non-detected results only [reported at the limit of detection (LOD)] with respect to the project sensitivity goals. The LODs for antimony, beryllium, cadmium, and thallium in select samples were elevated as a result of the presence of laboratory blank contamination. Although elevated, the LODs for antimony, beryllium, and cadmium still met the project screening limits; thus, the data usability is not impacted for these analytes. The elevated LODs for thallium in select samples did not meet the project screening limit. Consequently, the data usability may be impacted for thallium with regards to sensitivity.

The project goals with respect to precision and laboratory data completeness were met for the metals data set. Data usability was not impacted with regards to precision and laboratory data completeness.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **P. CALL** **DATE:** **DECEMBER 13, 2011**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH / PCB**
NAS SOUTH WEYMOUTH, CTO WE11
SDG 1108447

SAMPLES:

14/PAH/PCB

IOA-SS-DUP03-081011	IOA-SS-EU23-0002	IOA-SS-EU33-0002
IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002
IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002
IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU47-0002
IOA-SS-EU48-0002	IOA-SS-EU49-0002	

OVERVIEW

The sample set for NAS South Weymouth, CTO WE11, SDG 1108447 consisted of fourteen (14) soil environmental samples. The samples were analyzed as listed above for polynuclear aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCB). One field duplicate sample pair was included in this sample delivery group (SDG): IOA-SS-EU46-0002 / IOA-SS-DUP03-081011.

The samples were collected by Tetra Tech on August 10, 2011 and analyzed by RTI Laboratories, Inc. All analyses were conducted in accordance with EPA SW-846 Methods 8270D for PAHs and 8082 for PCBs, analytical and reporting protocols. A Tier II validation was conducted on the referenced samples. The data was evaluated based on the following parameters:

- Data Completeness
- Holding Times
- * GC/MS Instrument Tuning and System Performance
- * Initial and Continuing Calibration
- * Blank Results
- * Blank Spike/Blank Spike Duplicate Results
- Surrogate Spike Recoveries
- Internal Standard Recoveries
- Matrix Spike/Matrix Spike Duplicate Recoveries
- * Field Duplicate Precision
- * Detection Limits

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report.

HOLD TIME

The extraction to analysis hold time of 40 days was exceeded by 8 or 9 days for all samples. All positive and

non-detected PAH analyte results for the soil samples were qualified estimated, (J) and (UJ), respectively.

MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

The PAH matrix spike / matrix spike duplicate (MS/MSD) associated with QC batch 23237 had percent recoveries greater than the quality control limit for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene in the MSD. In addition, the relative percent differences exceeded the quality control limits for fluoranthene, phenanthrene, and pyrene. No action was taken on this basis because the MS had acceptable recoveries and the unspiked sample was not contained in this SDG.

INTERNAL STANDARDS

The internal standard perylene-d12 had recoveries less than the quality control limit for samples IOA-SS-EU44-0002, IOA-SS-EU45-0002, IOA-SS-EU36-0002, IOA-SS-EU48-0002, and IOA-SS-EU23-0002. The positive and nondetected results for compounds quantified using perylene-d12 in the affected samples have been qualified as estimated (J) and (UJ), respectively.

SURROGATE SPIKE RECOVERIES

The PAH surrogate nitrobenzene-d5 had a percent recovery greater than the quality control limit for sample IOA-SS-EU43-0002. No action was taken on this basis because only one surrogate per fraction was outside of the quality control limit.

ADDITIONAL COMMENTS

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

The laboratory abbreviated the sample identifications throughout the laboratory report due to a character limitation of the laboratory forms processing system. No action was taken for this issue.

Sample results were reported to the Limit of Detection (LOD) in the database but LODs were not presented on sample Form Is.

The laboratory noted in the case narrative that sample IOA-SS-EU45-0002 for the PAH fraction appeared to be an oily type of matrix and was analyzed at a five times dilution. This accounts for the elevated detection limits for the nondetected compounds.

Due to the lack of appropriate forms provided by the laboratory for all fractions analyzed, excessive time was spent by the data validation chemist paging through the raw data portion of the data package in order to get the necessary sample data required for data validation purposes.

EXECUTIVE SUMMARY

Laboratory Performance: The sample extraction to analysis hold time of 40 days was exceeded for all soil PAH analyses resulting in qualification of all PAH sample data. Internal standard recovery noncompliances resulted in the qualification of results for two samples in the PAH fraction. Matrix spike and surrogate recovery noncompliances were noted but did not result in the qualification of data. Database results for total Aroclors did not agree with sample Form Is. The reviewer corrected the database to match the Form Is.

Other Factors Affecting Data Quality: Positive results reported below the limit of quantitation (LOQ) but above the method detection limit were qualified as estimated, (J).

The data for these analyses were reviewed with reference to the EPA SW-846 Methods 8270D for PAHs, and 8082 for PCBs, analytical and reporting protocols, "USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II" (December 1996), and the (DOD) QSM document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech NUS
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Regional Worksheets
Appendix D – Support Documentation

APPENDIX A

QUALIFIED LABORATORY RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP03-081011			IOA-SS-EU23-0002			IOA-SS-EU33-0002			IOA-SS-EU34-0002		
SDG: 1108447	LAB_ID	1108447-004A			1108447-006A			1108447-014A			1108447-013A		
FRACTION: PAH	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.6			85.1			92.9			84.1		
	DUP_OF	IOA-SS-EU46-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		18	UJ	H	29	UJ	H	18	UJ	H	20	UJ	H
ACENAPHTHENE		18	UJ	H	29	UJ	H	18	UJ	H	8	J	HP
ACENAPHTHYLENE		18	UJ	H	15	J	HP	13	J	HP	20	UJ	H
ANTHRACENE		8	J	HP	35	J	HP	11	J	HP	19	J	HP
BENZO(A)ANTHRACENE		31	J	HP	110	J	HP	37	J	HP	51	J	HP
BENZO(A)PYRENE		38	J	HP	120	J	HNP	42	J	HP	51	J	HP
BENZO(B)FLUORANTHENE		56	J	HP	220	J	HNP	77	J	HP	74	J	HP
BENZO(G,H,I)PERYLENE		24	J	HP	59	J	HNP	36	J	HP	31	J	HP
BENZO(K)FLUORANTHENE		24	J	HP	87	J	HNP	53	J	HP	36	J	HP
CHRYSENE		44	J	HP	140	J	HP	53	J	HP	67	J	HP
DIBENZO(A,H)ANTHRACENE		36	UJ	H	59	UJ	HN	36	UJ	H	40	UJ	H
FLUORANTHENE		58	J	HP	280	J	HP	68	J	HP	150	J	HP
FLUORENE		18	UJ	H	29	UJ	H	18	UJ	H	20	UJ	H
INDENO(1,2,3-CD)PYRENE		36	UJ	H	59	UJ	HN	31	J	HP	40	UJ	H
NAPHTHALENE		18	UJ	H	29	UJ	H	18	UJ	H	20	UJ	H
PHENANTHRENE		23	J	HP	170	J	HP	30	J	HP	95	J	HP
PYRENE		57	J	HP	340	J	H	61	J	HP	110	J	HP

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU35-0002			IOA-SS-EU36-0002			IOA-SS-EU42-0002			IOA-SS-EU43-0002		
SDG: 1108447	LAB_ID	1108447-005A			1108447-003A			1108447-012A			1108447-011A		
FRACTION: PAH	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	93.3			85.6			82.8			95.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		18	UJ	H	13	J	HP	20	UJ	H	17	UJ	H
ACENAPHTHENE		18	UJ	H	120	J	HP	20	UJ	H	17	UJ	H
ACENAPHTHYLENE		18	UJ	H	10	J	HP	8	J	HP	38	J	HP
ANTHRACENE		18	UJ	H	210	J	H	10	J	HP	38	J	HP
BENZO(A)ANTHRACENE		18	UJ	H	630	J	H	38	J	HP	85	J	HP
BENZO(A)PYRENE		18	UJ	H	440	J	HN	37	J	HP	81	J	HP
BENZO(B)FLUORANTHENE		7	J	HP	750	J	HN	62	J	HP	160	J	HP
BENZO(G,H,I)PERYLENE		18	UJ	H	150	J	HNP	23	J	HP	51	J	HP
BENZO(K)FLUORANTHENE		18	UJ	H	250	J	HN	26	J	HP	67	J	HP
CHRYSENE		18	UJ	H	700	J	H	49	J	HP	110	J	HP
DIBENZO(A,H)ANTHRACENE		36	UJ	H	52	J	HNP	40	UJ	H	35	UJ	H
FLUORANTHENE		7	J	HP	1300	J	H	81	J	HP	200	J	H
FLUORENE		18	UJ	H	97	J	HP	20	UJ	H	10	J	HP
INDENO(1,2,3-CD)PYRENE		36	UJ	H	150	J	HNP	40	UJ	H	55	J	HP
NAPHTHALENE		18	UJ	H	21	J	HP	20	UJ	H	17	UJ	H
PHENANTHRENE		18	UJ	H	1000	J	H	35	J	HP	98	J	HP
PYRENE		18	UJ	H	1300	J	H	69	J	HP	160	J	HP

PROJ_NO: 02073 SDG: 1108447 FRACTION: PAH MEDIA: SOIL	NSAMPLE	IOA-SS-EU44-0002			IOA-SS-EU45-0002			IOA-SS-EU46-0002			IOA-SS-EU47-0002		
	LAB_ID	1108447-010A			1108447-007A			1108447-002A			1108447-001A		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.3			78.1			91.7			87.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		19	UJ	H	55	J	HP	18	UJ	H	19	UJ	H
ACENAPHTHENE		19	UJ	H	110	UJ	H	18	UJ	H	19	UJ	H
ACENAPHTHYLENE		19	UJ	H	110	J	HP	18	UJ	H	19	UJ	H
ANTHRACENE		9	J	HP	190	J	HP	8	J	HP	19	UJ	H
BENZO(A)ANTHRACENE		34	J	HP	290	J	HP	33	J	HP	19	UJ	H
BENZO(A)PYRENE		47	J	HNP	260	J	HNP	35	J	HP	19	UJ	H
BENZO(B)FLUORANTHENE		93	J	HNP	620	J	HNP	53	J	HP	19	UJ	H
BENZO(G,H,I)PERYLENE		26	J	HNP	200	J	HNP	22	J	HP	19	UJ	H
BENZO(K)FLUORANTHENE		33	J	HNP	210	J	HNP	20	J	HP	19	UJ	H
CHRYSENE		69	J	HP	400	J	HP	38	J	HP	19	UJ	H
DIBENZO(A,H)ANTHRACENE		38	UJ	HN	210	UJ	HN	36	UJ	H	38	UJ	H
FLUORANTHENE		100	J	HP	570	J	HP	68	J	HP	19	UJ	H
FLUORENE		19	UJ	H	110	UJ	H	18	UJ	H	19	UJ	H
INDENO(1,2,3-CD)PYRENE		38	UJ	HN	210	UJ	HN	36	UJ	H	38	UJ	H
NAPHTHALENE		19	UJ	H	110	UJ	H	18	UJ	H	19	UJ	H
PHENANTHRENE		64	J	HP	320	J	HP	29	J	HP	19	UJ	H
PYRENE		98	J	HP	610	J	HP	59	J	HP	19	UJ	H

PROJ_NO: 02073 SDG: 1108447 FRACTION: PAH MEDIA: SOIL	NSAMPLE	IOA-SS-EU48-0002			IOA-SS-EU49-0002		
	LAB_ID	1108447-009A			1108447-008A		
	SAMP_DATE	8/10/2011			8/10/2011		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.0			89.7		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		19	UJ	H	19	UJ	H
ACENAPHTHENE		19	UJ	H	19	UJ	H
ACENAPHTHYLENE		19	UJ	H	19	UJ	H
ANTHRACENE		19	UJ	H	19	UJ	H
BENZO(A)ANTHRACENE		10	J	HP	19	UJ	H
BENZO(A)PYRENE		19	UJ	HN	19	UJ	H
BENZO(B)FLUORANTHENE		12	J	HNP	19	UJ	H
BENZO(G,H,I)PERYLENE		19	UJ	HN	19	UJ	H
BENZO(K)FLUORANTHENE		19	UJ	HN	19	UJ	H
CHRYSENE		7	J	HP	19	UJ	H
DIBENZO(A,H)ANTHRACENE		37	UJ	HN	37	UJ	H
FLUORANTHENE		14	J	HP	19	UJ	H
FLUORENE		19	UJ	H	19	UJ	H
INDENO(1,2,3-CD)PYRENE		37	UJ	HN	37	UJ	H
NAPHTHALENE		19	UJ	H	19	UJ	H
PHENANTHRENE		19	UJ	H	19	UJ	H
PYRENE		15	J	HP	19	UJ	H

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP03-081011			IOA-SS-EU23-0002			IOA-SS-EU33-0002			IOA-SS-EU34-0002		
SDG: 1108447	LAB_ID	1108447-004b			1108447-006b			1108447-014b			1108447-013b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.6			85.1			92.9			84.1		
	DUP_OF	IOA-SS-EU46-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1221		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1232		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1242		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1248		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1254		7.1	U		7.7	U		7.1	U		7.8	U	
AROCLOR-1260		7.1	U		8	J	P	7.1	U		7.8	U	
TOTAL AROCLOR		7.1	U		8	J	P	7.1	U		7.8	U	

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU35-0002			IOA-SS-EU36-0002			IOA-SS-EU42-0002			IOA-SS-EU43-0002		
SDG: 1108447	LAB_ID	1108447-005b			1108447-003b			1108447-012b			1108447-011b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	93.3			85.6			82.8			95.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1221		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1232		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1242		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1248		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1254		7.1	U		7.6	U		8	U		69	U	
AROCLOR-1260		7.1	U		7.6	U		8	U		710		
TOTAL AROCLOR		7.1	U		7.6	U		8	U		710		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU44-0002			IOA-SS-EU45-0002			IOA-SS-EU46-0002			IOA-SS-EU47-0002		
SDG: 1108447	LAB_ID	1108447-010b			1108447-007b			1108447-002b			1108447-001b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.3			78.1			91.7			87.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1221		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1232		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1242		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1248		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1254		7.6	U		8.5	U		7.1	U		7.6	U	
AROCLOR-1260		7.6	U		61			5	J	P	7.6	U	
TOTAL AROCLOR		7.6	U		61			5	J	P	7.6	U	

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU48-0002			IOA-SS-EU49-0002		
SDG: 1108447	LAB_ID	1108447-009b			1108447-008b		
FRACTION: PCB	SAMP_DATE	8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	90.0			89.7		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.3	U		7.4	U	
AROCLOR-1221		7.3	U		7.4	U	
AROCLOR-1232		7.3	U		7.4	U	
AROCLOR-1242		7.3	U		7.4	U	
AROCLOR-1248		7.3	U		7.4	U	
AROCLOR-1254		7.3	U		7.4	U	
AROCLOR-1260		8	J	P	7.4	U	
TOTAL AROCLOR		8	J	P	7.4	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-004 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP03-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 4:41:42 AM
Surr: Decachlorobiphenyl	104	60-125		%REC	1	8/19/2011 4:41:42 AM
Surr: Tetrachloro-m-xylene	91.6	60-125		%REC	1	8/19/2011 4:41:42 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	10,000,000	150,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Arsenic	1,300	220		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Barium	16,000	3,700		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Beryllium	280	300	J	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Cadmium	220	150		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Calcium	900,000	150,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Chromium	9,600	1,500		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Cobalt	2,700	740		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Copper	4,800	740		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Iron	11,000,000	590,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Lead	24,000	150		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Magnesium	1,900,000	74,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Manganese	130,000	15,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Nickel	7,100	1,500		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Potassium	310,000	74,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Selenium	300	740	J	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Sodium	59,000	74,000	J	µg/Kg-dry	20	9/7/2011 11:27:23 AM
Thallium	ND	300	U	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Vanadium	16,000	590		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Zinc	37,000	7,400		µg/Kg-dry	20	9/7/2011 9:52:57 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-004 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP03-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	160	250	J	µg/Kg-dry	10	9/8/2011 6:03:11 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:03:11 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	32	25		µg/Kg-dry	1	8/24/2011 1:42:09 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Anthracene	8.6	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(a)anthracene	31	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(a)pyrene	38	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(b)fluoranthene	56	170	JmH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(g,h,i)perylene	24	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(k)fluoranthene	24	170	JmH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Chrysene	44	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Fluoranthene	58	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Phenanthrene	23	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Pyrene	57	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Surr: 2-Fluorobiphenyl	88.1	45-105	H	%REC	1	10/3/2011 2:59:00 PM
Surr: Nitrobenzene-d5	84.4	35-100	H	%REC	1	10/3/2011 2:59:00 PM
Surr: Terphenyl-d14	99.1	30-125	H	%REC	1	10/3/2011 2:59:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.4	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108447**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU23-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1260	8.0	38	J	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Total PCBs	8.0	38		µg/Kg-dry	1	8/19/2011 6:18:23 AM
Surr: Decachlorobiphenyl	107	60-125		%REC	1	8/19/2011 6:18:23 AM
Surr: Tetrachloro-m-xylene	104	60-125		%REC	1	8/19/2011 6:18:23 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,800,000	160,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Arsenic	2,200	230		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Barium	19,000	3,900		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Beryllium	380	310		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Cadmium	440	160		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Calcium	1,500,000	160,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Chromium	7,500	1,600		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Cobalt	3,400	780		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Copper	6,600	780		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Iron	12,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Lead	26,000	160		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Magnesium	1,700,000	78,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Manganese	150,000	16,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Nickel	8,700	1,600		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Potassium	310,000	78,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Selenium	290	780	J	µg/Kg-dry	20	9/7/2011 10:13:36 AM
Sodium	29,000	78,000	J	µg/Kg-dry	20	9/7/2011 11:38:35 AM
Thallium	110	310	J	µg/Kg-dry	20	9/7/2011 10:13:36 AM
Vanadium	20,000	620		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Zinc	40,000	7,800		µg/Kg-dry	20	9/7/2011 10:13:36 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU23-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	220	150		µg/Kg-dry	10	9/8/2011 6:03:58 PM
Silver	60	90	J	µg/Kg-dry	10	9/8/2011 6:03:58 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	23	33	J	µg/Kg-dry	1	8/24/2011 1:43:38 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Acenaphthene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Acenaphthylene	15	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Anthracene	35	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(a)anthracene	110	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(a)pyrene	120	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(b)fluoranthene	220	280	JmH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(g,h,i)perylene	59	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(k)fluoranthene	87	280	JmH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Chrysene	140	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Dibenzo (a,h) anthracene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Fluoranthene	280	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Fluorene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Indeno(1,2,3-cd)pyrene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Naphthalene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Phenanthrene	170	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Pyrene	340	280	H	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Surr: 2-Fluorobiphenyl	89.3	45-105	H	%REC	1	10/4/2011 9:04:00 PM
Surr: Nitrobenzene-d5	83.3	35-100	H	%REC	1	10/4/2011 9:04:00 PM
Surr: Terphenyl-d14	125	30-125	SH	%REC	1	10/4/2011 9:04:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU33-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 10:52:46 AM
Surr: Decachlorobiphenyl	90.3	60-125		%REC	1	8/19/2011 10:52:46 AM
Surr: Tetrachloro-m-xylene	78.7	60-125		%REC	1	8/19/2011 10:52:46 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,100,000	130,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Arsenic	1,700	200		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Barium	16,000	3,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Beryllium	400	260		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Cadmium	180	130		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Calcium	1,300,000	130,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Chromium	7,000	1,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Cobalt	4,300	660		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Copper	7,800	660		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Iron	15,000,000	530,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Lead	10,000	130		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Magnesium	2,500,000	66,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Manganese	240,000	13,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Nickel	7,100	1,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Potassium	480,000	66,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Selenium	350	660	J	µg/Kg-dry	20	9/7/2011 10:26:25 AM
Sodium	54,000	66,000	J	µg/Kg-dry	20	9/7/2011 11:45:14 AM
Thallium	ND	260	U	µg/Kg-dry	20	9/7/2011 10:26:25 AM
Vanadium	19,000	530		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Zinc	38,000	6,600		µg/Kg-dry	20	9/7/2011 10:26:25 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU33-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	200	J	µg/Kg-dry	10	9/8/2011 6:14:54 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:14:54 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	4.4	29	J	µg/Kg-dry	1	8/24/2011 2:01:11 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Acenaphthylene	13	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Anthracene	11	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(a)anthracene	37	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(a)pyrene	42	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(b)fluoranthene	77	170	JmH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(g,h,i)perylene	36	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(k)fluoranthene	53	170	JmH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Chrysene	53	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Fluoranthene	68	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Indeno(1,2,3-cd)pyrene	31	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Phenanthrene	30	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Pyrene	61	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Surr: 2-Fluorobiphenyl	84.1	45-105	H	%REC	1	10/3/2011 8:03:00 PM
Surr: Nitrobenzene-d5	86.9	35-100	H	%REC	1	10/3/2011 8:03:00 PM
Surr: Terphenyl-d14	99.6	30-125	H	%REC	1	10/3/2011 8:03:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.1	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU34-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1260	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Total PCBs	ND	39		µg/Kg-dry	1	8/19/2011 10:28:35 AM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/19/2011 10:28:35 AM
Surr: Tetrachloro-m-xylene	93.6	60-125		%REC	1	8/19/2011 10:28:35 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,600,000	150,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Arsenic	1,600	230		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Barium	22,000	3,800		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Beryllium	530	300		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Cadmium	210	150		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Calcium	1,600,000	150,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Chromium	8,200	1,500		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Cobalt	5,600	760		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Copper	6,100	760		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Iron	22,000,000	610,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Lead	9,900	150		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Magnesium	2,100,000	76,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Manganese	380,000	15,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Nickel	7,700	1,500		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Potassium	310,000	76,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Selenium	240	760	J	µg/Kg-dry	20	9/7/2011 10:24:49 AM
Sodium	47,000	76,000	J	µg/Kg-dry	20	9/7/2011 11:44:24 AM
Thallium	ND	300	U	µg/Kg-dry	20	9/7/2011 10:24:49 AM
Vanadium	16,000	610		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Zinc	33,000	7,600		µg/Kg-dry	20	9/7/2011 10:24:49 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU34-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	97	250	J	µg/Kg-dry	10	9/8/2011 6:14:07 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:14:07 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	3.1	28	J	µg/Kg-dry	1	8/24/2011 1:59:43 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Acenaphthene	8.7	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Anthracene	19	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(a)anthracene	51	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(a)pyrene	51	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(b)fluoranthene	74	190	JmH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(g,h,i)perylene	31	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(k)fluoranthene	36	190	JmH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Chrysene	67	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Fluoranthene	150	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Phenanthrene	95	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Pyrene	110	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Surr: 2-Fluorobiphenyl	90.8	45-105	H	%REC	1	10/3/2011 2:35:00 PM
Surr: Nitrobenzene-d5	92.4	35-100	H	%REC	1	10/3/2011 2:35:00 PM
Surr: Terphenyl-d14	95.6	30-125	H	%REC	1	10/3/2011 2:35:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	16	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU35-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 5:05:52 AM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/19/2011 5:05:52 AM
Surr: Tetrachloro-m-xylene	99.1	60-125		%REC	1	8/19/2011 5:05:52 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,500,000	170,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Arsenic	1,200	250		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Barium	12,000	4,200		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Beryllium	310	330	J	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Cadmium	160	170	J	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Chromium	9,000	1,700		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Cobalt	3,600	840		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Copper	7,900	840		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Iron	12,000,000	670,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Lead	8,200	170		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Magnesium	2,300,000	84,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Manganese	200,000	17,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Nickel	7,700	1,700		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Potassium	320,000	84,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Selenium	ND	840	U	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Sodium	49,000	84,000	J	µg/Kg-dry	20	9/7/2011 11:24:02 AM
Thallium	ND	330	U	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Vanadium	11,000	670		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Zinc	33,000	8,400		µg/Kg-dry	20	9/7/2011 9:45:55 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU35-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	85	210	J	µg/Kg-dry	10	9/8/2011 6:00:03 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:00:03 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.7	32	J	µg/Kg-dry	1	8/24/2011 1:33:18 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(a)anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(a)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(b)fluoranthene	7.8	170	JmH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(g,h,i)perylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(k)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Chrysene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Fluoranthene	7.8	170	JH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Phenanthrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Surr: 2-Fluorobiphenyl	82.2	45-105	H	%REC	1	10/3/2011 12:37:00 PM
Surr: Nitrobenzene-d5	80.9	35-100	H	%REC	1	10/3/2011 12:37:00 PM
Surr: Terphenyl-d14	88.9	30-125	H	%REC	1	10/3/2011 12:37:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	6.7	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU36-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 4:17:33 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/19/2011 4:17:33 AM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 4:17:33 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	9,400,000	170,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Arsenic	2,300	260		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Barium	22,000	4,400		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Beryllium	450	350		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Cadmium	330	170		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Chromium	15,000	1,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Cobalt	4,900	870		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Copper	13,000	870		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Iron	18,000,000	700,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Lead	32,000	170		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Magnesium	3,000,000	87,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Manganese	350,000	17,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Nickel	9,900	1,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Potassium	440,000	87,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Selenium	ND	870	U	µg/Kg-dry	20	9/7/2011 9:51:20 AM
Sodium	58,000	87,000	J	µg/Kg-dry	20	9/7/2011 11:26:32 AM
Thallium	ND	350	U	µg/Kg-dry	20	9/7/2011 9:51:20 AM
Vanadium	19,000	700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Zinc	44,000	8,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU36-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	160	250	J	µg/Kg-dry	10	9/8/2011 6:02:24 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:02:24 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	22	32	J	µg/Kg-dry	1	8/24/2011 1:40:41 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	13	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Acenaphthene	120	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Acenaphthylene	10	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Anthracene	210	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(a)anthracene	630	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(a)pyrene	440	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(b)fluoranthene	750	190	mH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(g,h,i)perylene	150	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(k)fluoranthene	250	190	mH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Chrysene	700	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Dibenzo (a,h) anthracene	52	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Fluoranthene	1,300	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Fluorene	97	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Indeno(1,2,3-cd)pyrene	150	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Naphthalene	21	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Phenanthrene	1,000	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Pyrene	1,300	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Surr: 2-Fluorobiphenyl	76.5	45-105	H	%REC	1	10/4/2011 7:53:00 PM
Surr: Nitrobenzene-d5	72.1	35-100	H	%REC	1	10/4/2011 7:53:00 PM
Surr: Terphenyl-d14	91.8	30-125	H	%REC	1	10/4/2011 7:53:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU42-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1260	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Total PCBs	ND	39		µg/Kg-dry	1	8/19/2011 9:56:02 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/19/2011 9:56:02 AM
Surr: Tetrachloro-m-xylene	94.8	60-125		%REC	1	8/19/2011 9:56:02 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	11,000,000	200,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Arsenic	2,300	300		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Barium	21,000	5,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Beryllium	390	400	J	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Cadmium	210	200		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Calcium	610,000	200,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Chromium	9,300	2,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Cobalt	3,700	1,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Copper	6,900	1,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Iron	19,000,000	800,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Lead	16,000	200		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Magnesium	2,000,000	100,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Manganese	240,000	20,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Nickel	7,200	2,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Potassium	380,000	100,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Selenium	420	1,000	J	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Sodium	45,000	100,000	J	µg/Kg-dry	20	9/7/2011 11:43:34 AM
Thallium	ND	400	U	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Vanadium	20,000	800		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Zinc	38,000	10,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU42-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	120	180	J	µg/Kg-dry	10	9/8/2011 6:13:21 PM
Silver	95	110	J	µg/Kg-dry	10	9/8/2011 6:13:21 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	17	35	J	µg/Kg-dry	1	8/24/2011 1:58:15 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Acenaphthene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Acenaphthylene	8.4	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Anthracene	10	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(a)anthracene	38	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(a)pyrene	37	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(b)fluoranthene	62	190	JmH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(g,h,i)perylene	23	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(k)fluoranthene	26	190	JmH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Chrysene	49	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Fluoranthene	81	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Phenanthrene	35	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Pyrene	69	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Surr: 2-Fluorobiphenyl	88.7	45-105	H	%REC	1	10/3/2011 2:12:00 PM
Surr: Nitrobenzene-d5	90.8	35-100	H	%REC	1	10/3/2011 2:12:00 PM
Surr: Terphenyl-d14	95.8	30-125	H	%REC	1	10/3/2011 2:12:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	17	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU43-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1221	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1232	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1242	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1248	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1254	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1260	710	340		µg/Kg-dry	10	8/19/2011 3:43:26 PM
Total PCBs	710	340		µg/Kg-dry	10	8/19/2011 3:43:26 PM
Surr: Decachlorobiphenyl	92.0	60-125		%REC	10	8/19/2011 3:43:26 PM
Surr: Tetrachloro-m-xylene	83.7	60-125		%REC	10	8/19/2011 3:43:26 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,600,000	130,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Arsenic	2,100	200		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Barium	22,000	3,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Beryllium	430	260		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Cadmium	360	130		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Calcium	1,400,000	130,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Chromium	11,000	1,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Cobalt	4,000	660		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Copper	10,000	660		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Iron	16,000,000	530,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Lead	35,000	130		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Magnesium	2,200,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Manganese	310,000	13,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Nickel	7,700	1,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Potassium	620,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Selenium	310	660	J	µg/Kg-dry	20	9/7/2011 10:21:37 AM
Sodium	77,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Thallium	ND	260	U	µg/Kg-dry	20	9/7/2011 10:21:37 AM
Vanadium	21,000	530		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Zinc	44,000	6,600		µg/Kg-dry	20	9/7/2011 10:21:37 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU43-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	210	200		µg/Kg-dry	10	9/8/2011 6:12:34 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:12:34 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	35	J	µg/Kg-dry	1	8/24/2011 1:53:48 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Acenaphthylene	38	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Anthracene	38	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(a)anthracene	85	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(a)pyrene	81	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(b)fluoranthene	160	170	JmH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(g,h,i)perylene	51	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(k)fluoranthene	67	170	JmH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Chrysene	110	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Fluoranthene	200	170	H	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Fluorene	10	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Indeno(1,2,3-cd)pyrene	55	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Phenanthrene	98	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Pyrene	160	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Surr: 2-Fluorobiphenyl	100	45-105	H	%REC	1	10/3/2011 3:23:00 PM
Surr: Nitrobenzene-d5	104	35-100	SH	%REC	1	10/3/2011 3:23:00 PM
Surr: Terphenyl-d14	109	30-125	H	%REC	1	10/3/2011 3:23:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.4	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: **1108447**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:55:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU44-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 9:07:38 AM
Surr: Decachlorobiphenyl	112	60-125		%REC	1	8/19/2011 9:07:38 AM
Surr: Tetrachloro-m-xylene	97.8	60-125		%REC	1	8/19/2011 9:07:38 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,800,000	150,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Arsenic	1,700	230		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Barium	19,000	3,800		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Beryllium	580	310		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Cadmium	340	150		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Calcium	1,000,000	150,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Chromium	7,900	1,500		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Cobalt	4,900	770		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Copper	11,000	770		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Iron	14,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Lead	20,000	150		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Magnesium	2,400,000	77,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Manganese	390,000	15,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Nickel	8,800	1,500		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Potassium	400,000	77,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Selenium	300	770	J	µg/Kg-dry	20	9/7/2011 10:20:01 AM
Sodium	58,000	77,000	J	µg/Kg-dry	20	9/7/2011 11:41:55 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 10:20:01 AM
Vanadium	15,000	620		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Zinc	58,000	7,700		µg/Kg-dry	20	9/7/2011 10:20:01 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:55:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU44-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	200		µg/Kg-dry	10	9/8/2011 6:11:48 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:11:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.9	32	J	µg/Kg-dry	1	8/24/2011 1:52:21 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Anthracene	9.5	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(a)anthracene	34	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(a)pyrene	47	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(b)fluoranthene	93	180	JmH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(g,h,i)perylene	26	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(k)fluoranthene	33	180	JmH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Chrysene	69	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Fluoranthene	100	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Phenanthrene	64	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Pyrene	98	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Surr: 2-Fluorobiphenyl	98.0	45-105	H	%REC	1	10/4/2011 7:06:00 PM
Surr: Nitrobenzene-d5	97.1	35-100	H	%REC	1	10/4/2011 7:06:00 PM
Surr: Terphenyl-d14	114	30-125	H	%REC	1	10/4/2011 7:06:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	13	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU45-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1221	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1232	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1242	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1248	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1254	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1260	61	42		µg/Kg-dry	1	8/19/2011 7:55:02 AM
Total PCBs	61	42		µg/Kg-dry	1	8/19/2011 7:55:02 AM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/19/2011 7:55:02 AM
Surr: Tetrachloro-m-xylene	87.5	60-125		%REC	1	8/19/2011 7:55:02 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	8,000,000	140,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Arsenic	7,200	210		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Barium	35,000	3,500		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Beryllium	360	280		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Cadmium	580	140		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Calcium	1,000,000	140,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Chromium	14,000	1,400		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Cobalt	3,800	700		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Copper	25,000	700		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Iron	14,000,000	560,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Lead	320,000	140		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Magnesium	1,900,000	70,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Manganese	220,000	14,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Nickel	8,900	1,400		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Potassium	340,000	70,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Selenium	380	700	J	µg/Kg-dry	20	9/7/2011 10:15:13 AM
Sodium	43,000	70,000	J	µg/Kg-dry	20	9/7/2011 11:39:26 AM
Thallium	92	280	J	µg/Kg-dry	20	9/7/2011 10:15:13 AM
Vanadium	25,000	560		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Zinc	81,000	7,000		µg/Kg-dry	20	9/7/2011 10:15:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU45-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	550	200		µg/Kg-dry	10	9/8/2011 6:09:28 PM
Silver	76	120	J	µg/Kg-dry	10	9/8/2011 6:09:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	60	30		µg/Kg-dry	1	8/24/2011 1:48:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	55	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Acenaphthene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Acenaphthylene	110	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Anthracene	190	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(a)anthracene	290	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(a)pyrene	260	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(b)fluoranthene	620	1,000	JmH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(g,h,i)perylene	200	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(k)fluoranthene	210	1,000	JmH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Chrysene	400	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Dibenzo (a,h) anthracene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Fluoranthene	570	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Fluorene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Naphthalene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Phenanthrene	320	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Pyrene	610	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Surr: 2-Fluorobiphenyl	92.0	45-105	H	%REC	5	10/4/2011 7:30:00 PM
Surr: Nitrobenzene-d5	84.6	35-100	H	%REC	5	10/4/2011 7:30:00 PM
Surr: Terphenyl-d14	117	30-125	H	%REC	5	10/4/2011 7:30:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	22	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU46-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1260	5.2	35	J	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Total PCBs	5.2	35		µg/Kg-dry	1	8/25/2011 2:37:47 AM
Surr: Decachlorobiphenyl	77.0	60-125		%REC	1	8/25/2011 2:37:47 AM
Surr: Tetrachloro-m-xylene	73.6	60-125		%REC	1	8/25/2011 2:37:47 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	10,000,000	150,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Arsenic	1,400	230		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Barium	17,000	3,900		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Beryllium	530	310		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Cadmium	250	150		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Calcium	830,000	150,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Chromium	11,000	1,500		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Cobalt	3,100	770		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Copper	5,700	770		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Iron	13,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Lead	33,000	150		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Magnesium	2,100,000	77,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Manganese	160,000	15,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Nickel	7,600	1,500		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Potassium	320,000	77,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Selenium	380	770	J	µg/Kg-dry	20	9/7/2011 9:49:44 AM
Sodium	45,000	77,000	J	µg/Kg-dry	20	9/7/2011 11:25:42 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 9:49:44 AM
Vanadium	17,000	620		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Zinc	40,000	7,700		µg/Kg-dry	20	9/7/2011 9:49:44 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU46-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	160	230	J	µg/Kg-dry	10	9/8/2011 6:01:37 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:01:37 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	44	31		µg/Kg-dry	1	8/24/2011 1:39:07 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Anthracene	8.7	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(a)anthracene	33	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(a)pyrene	35	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(b)fluoranthene	53	170	JmH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(g,h,i)perylene	22	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(k)fluoranthene	20	170	JmH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Chrysene	38	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Fluoranthene	68	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Phenanthrene	29	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Pyrene	59	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Surr: 2-Fluorobiphenyl	79.9	45-105	H	%REC	1	10/3/2011 12:14:00 PM
Surr: Nitrobenzene-d5	78.6	35-100	H	%REC	1	10/3/2011 12:14:00 PM
Surr: Terphenyl-d14	88.5	30-125	H	%REC	1	10/3/2011 12:14:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.3	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU47-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/25/2011 2:13:32 AM
Surr: Decachlorobiphenyl	92.7	60-125		%REC	1	8/25/2011 2:13:32 AM
Surr: Tetrachloro-m-xylene	92.3	60-125		%REC	1	8/25/2011 2:13:32 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,900,000	160,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Arsenic	1,300	240		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Barium	11,000	3,900		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Beryllium	270	310	J	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Cadmium	180	160		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Calcium	1,700,000	160,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Chromium	16,000	1,600		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Cobalt	6,300	790		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Copper	7,900	790		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Iron	11,000,000	630,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Lead	10,000	160		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Magnesium	4,900,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Manganese	220,000	16,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Nickel	14,000	1,600		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Potassium	300,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Selenium	ND	790	U	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Sodium	85,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Vanadium	17,000	630		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Zinc	40,000	7,900		µg/Kg-dry	20	9/7/2011 9:47:31 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
B	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU47-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	70	230	J	µg/Kg-dry	10	9/8/2011 6:00:50 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:00:50 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.5	33	J	µg/Kg-dry	1	8/24/2011 12:15:30 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Surr: 2-Fluorobiphenyl	77.5	45-105	H	%REC	1	10/4/2011 6:42:00 PM
Surr: Nitrobenzene-d5	74.5	35-100	H	%REC	1	10/4/2011 6:42:00 PM
Surr: Terphenyl-d14	89.8	30-125	H	%REC	1	10/4/2011 6:42:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	12	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU48-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1260	8.2	36	J	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Total PCBs	8.2	36		µg/Kg-dry	1	8/19/2011 8:43:27 AM
Surr: Decachlorobiphenyl	96.7	60-125		%REC	1	8/19/2011 8:43:27 AM
Surr: Tetrachloro-m-xylene	90.7	60-125		%REC	1	8/19/2011 8:43:27 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	8,500,000	160,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Arsenic	3,400	240		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Barium	21,000	4,000		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Beryllium	450	320		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Cadmium	190	160		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Calcium	1,400,000	160,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Chromium	9,900	1,600		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Cobalt	5,200	810		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Copper	8,700	810		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Iron	20,000,000	640,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Lead	8,100	160		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Magnesium	2,800,000	81,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Manganese	310,000	16,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Nickel	9,300	1,600		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Potassium	420,000	81,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Selenium	ND	810	U	µg/Kg-dry	20	9/7/2011 10:18:25 AM
Sodium	80,000	81,000	J	µg/Kg-dry	20	9/7/2011 11:41:06 AM
Thallium	ND	320	U	µg/Kg-dry	20	9/7/2011 10:18:25 AM
Vanadium	15,000	640		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Zinc	36,000	8,100		µg/Kg-dry	20	9/7/2011 10:18:25 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU48-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	110	190	J	µg/Kg-dry	10	9/8/2011 6:11:02 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:11:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.9	38	J	µg/Kg-dry	1	8/24/2011 1:50:55 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(a)anthracene	10	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(b)fluoranthene	12	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Chrysene	7.8	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Fluoranthene	14	180	JH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Pyrene	15	180	JH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Surr: 2-Fluorobiphenyl	89.4	45-105	H	%REC	1	10/4/2011 8:41:00 PM
Surr: Nitrobenzene-d5	86.5	35-100	H	%REC	1	10/4/2011 8:41:00 PM
Surr: Terphenyl-d14	112	30-125	H	%REC	1	10/4/2011 8:41:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
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PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU49-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 8:19:11 AM
Surr: Decachlorobiphenyl	108	60-125		%REC	1	8/19/2011 8:19:11 AM
Surr: Tetrachloro-m-xylene	87.3	60-125		%REC	1	8/19/2011 8:19:11 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,400,000	170,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Arsenic	36,000	260		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Barium	26,000	4,300		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Beryllium	560	340		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Cadmium	200	170		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Chromium	7,900	1,700		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Cobalt	4,000	850		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Copper	6,000	850		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Iron	45,000,000	680,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Lead	16,000	170		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Magnesium	1,700,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Manganese	280,000	17,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Nickel	6,100	1,700		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Potassium	330,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Selenium	ND	850	U	µg/Kg-dry	20	9/7/2011 10:16:50 AM
Sodium	120,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Thallium	ND	340	U	µg/Kg-dry	20	9/7/2011 10:16:50 AM
Vanadium	18,000	680		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Zinc	29,000	8,500		µg/Kg-dry	20	9/7/2011 10:16:50 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU49-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	120	190	J	µg/Kg-dry	10	9/8/2011 6:10:16 PM
Silver	ND	110	U	µg/Kg-dry	10	9/8/2011 6:10:16 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	39	J	µg/Kg-dry	1	8/24/2011 1:49:29 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Surr: 2-Fluorobiphenyl	88.0	45-105	H	%REC	1	10/3/2011 1:48:00 PM
Surr: Nitrobenzene-d5	89.8	35-100	H	%REC	1	10/3/2011 1:48:00 PM
Surr: Terphenyl-d14	92.3	30-125	H	%REC	1	10/3/2011 1:48:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
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Revision v2

APPENDIX C

REGIONAL WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name NAS South Weymouth
Reference No. _____

See DV Report

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name RTI
Case/Project No. _____
SDG No. 1105447
No. of Samples/Matrix _____

SOW/Method No. _____
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. _____

Trip Blank No. _____
Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____

PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- LICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Edward Hanley Company Name Tetratech Phone Number 412 921-8704

Date Validation Started 12/6/11

Date Validation Completed 12/7/11

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	
VOA/SV-III	INITIAL CALIBRATION	
VOA/SV-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	
SV-VI	SV SURROGATE SPIKE RECOVERIES	
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	
VOA/SV-XV	SEMIVOLATILE CLEANUP	
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

Pest/PCB worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-	
Pest/PCB-IIB	RESOLUTION	
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-	
Pest/PCB-IID	RETENTION TIMES	
	GC/ECD INSTRUMENT PERFORMANCE CHECK-	
	ACCURACY CHECK OF INITIAL CALIBRATION	
	GC/ECD INSTRUMENT PERFORMANCE CHECK-	
Pest/PCB-III	PESTICIDE DEGRADATION	
Pest/PCB-IV	INITIAL CALIBRATION	
VOA/SV-Pest/PCB-V-A	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
Pest/PCB-VI	BLANK ANALYSIS	
	SURROGATE COMPOUNDS	
Pest/PCB-VII	SPIKE RECOVERIES AND RETENTION TIME SHIFT	
VOA/SV-Pest/PCB-VIII	PESTICIDE CLEANUP	
VOA/SV-Pest/PCB-IX	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-X	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-XI	SENSITIVITY CHECK	
Pest/PCB-XII	ACCURACY CHECK	
VOA/SV-Pest/PCB-XIII	COMPOUND IDENTIFICATION	
TABLE II-WORKSHEET	SAMPLE QUANTITATION	
	OVERALL EVALUATION OF DATA	

I certify that all criteria were met for the worksheets checked above

Signature: Edward Sedlmyer

Name: Edward Sedlmyer

Date: 12/7/11

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
   a. Narrative
   b. Table I-Qualifier Recommendation Summary Table
   c. Table II-Overall Evaluation of Data
   d. Table III-Tentatively Identified Compounds
   e. Data Summary Tables
3. Standard Data Validation Worksheets
   a. Manual
   b. Automated Data Review Reports (i.e., CADRE)
4. Support Documentation
   a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
   b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
   c. Copies of Telephone Logs/Communication Forms for:
      - RSCC communications
      - Requests for laboratory data resubmissions/clarifications
      - Communications with samplers resolving sampling problems
      - Communications with TPO/Lead Chemist to report contractually-deficient data for rejection/reduced payment
      - Communications with EPA Site Manager concerning possible data rejection
      - EPA Site Manager authorization for alternate DV tier
   d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
   e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
   f. Copies of field sampling notes and/or field report supplied by field sampler
   g. Copies of EPA-approved amendments to QAPjP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

NA

VOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: Edward Lodbyer

Date: 12/7/11

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

NA

SEMIVOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: Edward Hadley

Date: 12/7/11

COMPLETE SDG FILE (CSF) AUDIT

See DV Report

Organic Fractions: _____

Missing Information	Date Lab Contacted	Date Received

Validator: Edward [illegible] Date: 12/7/11

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

See DU Report

Sampler ____________ Company: ____________ Contacted: Yes No Date: ____________

I. PRESERVATION AND HOLDING TIMES -

Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No (TR No)	Matrix	Pres Code	Date Sampled	VOA			BNA						PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action		Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Acti

Preservation Code:
1 Cool @ 4°C (± 2°)
2 Preserve with HCl to at least pH 2
3 Protect from light
4 Freeze
5 Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: Edward Sredlay

Date: 12/7/11

EPA-NE - Data Validation Worksheet See DV Report
VOA/SV-II

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments							

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments							

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: Edward Hadlow

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-III

See DV Report

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	$\overline{RRF}$	Samples Affected	Action

Comments.

Validator: [signature]

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-IV

See DU Report

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action

Comments

Validator: [signature]

Date: 12/7/11

EPA-NE - Data Validation Worksheet See DV Report
VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below.

Sampler: _____ Company: _____ Concentration Level: _____

1. Laboratory: Method, Storage and Instrument Blanks

Contacted: Yes No Date: _____

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

Validator: Edward Hedlund

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

See DV Report

3. Blank Actions - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action

Comments: _____

Validator: Edward Headley

Date: 12/7/11

See DV Report

EPA-NE - Data Validation Worksheet
VOA-VI

VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Volatile Method QC Acceptance Criteria				
	Toluene-d_8	BFB	DCE-d_4	Other:	
OLM03.2	Water 88-110 Soil 84-138	Water 86-115 Soil 59-113	Water 76-114 Soil 70-121		
OLC02.1	NA	80-120	NA		
Other:					
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	Action

Validator: Edward Hadley

Date: 12/7/11

EPA-NE - Data Validation Worksheet
SV-VI

See DV Reports

VI. SV SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action

* Advisory Surrogates - OLM03.2

Validator: Edward [illegible]

Date: 12/7/11

See DV Report

EPA-NE - Data Validation Worksheet
VOA/SV-VII

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria: _____
IS Retention Time method QC acceptance criteria: _____

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	__IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action

Validator: Edward Ledlow

Date: 12/7/11

See DV Report

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria. Use a separate worksheet for each MS/MSD pair.

Sample # _____ Matrix _____ Concentration Level _____

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		

Validator Edward Sedlyar

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

See DV Report

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: Edward Sedlay Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-X

See DV Report

X. SENSITIVITY CHECK (Method Detection Limit Study)

List all compounds, surrogates, and internal standards that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each compound and matrix of interest? Y N
- Date of Preparation/Analysis: _____ Within 1 year? Y N
- Instrument I.D. _____ Same as samples? Y N
- Column I.D. _____ Same as samples? Y N

Matrix	Compound	MDL > QL	Method QC Limits < 80% or > 120%	IS Outside Area Count and/or RT Criteria	RSD > 20%	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

(Laboratory Fortified Blank) - List all LFB compounds, surrogates and internal standards that are outside criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? Y N
- Does it contain all target compounds at the method-required QLs? Y N
- Was the LFB spiked with a standard from a source (vendor) independent of the calibration standard? Y N

Matrix	Compound	Method QC Limits < 60% or > 140% Other:	IS Outside Area Count and/or RT Criteria	Samples Affected	Action

Validator: Edward Sedlmayer

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XI

See DV Report

XI. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

SDG No: _____ CASE: _____

Are more than one-half of the PES analytes within criteria for each parameter. Y N

PE Sample Number	Ampule Number	Parameter	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HI
TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUNI
HIT (% Recovery Limits)

Validator: Edward Sadlyn Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

See DV Report

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	___MS Ions	___RRT	Action

Validator: Edward Ludlow

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XIII

See DV Report

XIII. SAMPLE QUANTITATION

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an examp for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? Y N
If no, list sample numbers_____

Fraction		Calculadon
VOA		
Sample No.		
Reported Compound		
Reported Value		
Not Detected Compound		
Reported Quantitation Limit		
BNA		
Sample No.		
Reported Compound		
Reported Value		
Not Detected Compound		
Reported Quantitation Limit		
Pesticide/PCB		
Sample No.		
Reported Compound		
Reported Value		
Not Detected Compound		
Reported Quantitation Limit		

Validator: Edward Kelly

Date: 12/7/11

NA

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

List the 5 TICs having the highest concentration for each sample parameter.

Sample Number	Parameter	Compound	RRT	Est. Conc.	Action

Validator: Edward Hedley

Date: 12/7/11

EPA-NE - Data Validation Worksheet
VOA/SV-XV

See DV Report

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments: _____

Validator: Edward Sadlyn

Date: 12/7/11

APPENDIX D

SUPPORT DOCUMENTATION

HOLDTIME

PROJ_NO 02073

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	HG	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	M	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	M	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	M	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	PMOIS	%	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	PMOIS	%	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	SIM	%	IOA-SS-EU48-0002	1108447-009A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
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1108447	SIM	%	IOA-SS-EU46-0002	1108447-002A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU45-0002	1108447-007A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	%	IOA-SS-EU44-0002	1108447-010A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	%	IOA-SS-EU49-0002	1108447-008A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU42-0002	1108447-012A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU36-0002	1108447-003A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	%	IOA-SS-EU35-0002	1108447-005A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU34-0002	1108447-013A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU33-0002	1108447-014A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-EU23-0002	1108447-006A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	%	IOA-SS-EU43-0002	1108447-011A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	%	IOA-SS-DUP03-081011	1108447-004A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU47-0002	1108447-001A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	UG/KG	IOA-SS-EU43-0002	1108447-011A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU45-0002	1108447-007A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	SIM	UG/KG	IOA-SS-EU42-0002	1108447-012A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU46-0002	1108447-002A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU36-0002	1108447-003A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	UG/KG	IOA-SS-EU35-0002	1108447-005A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-DUP03-081011	1108447-004A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU34-0002	1108447-013A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU48-0002	1108447-009A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	UG/KG	IOA-SS-EU33-0002	1108447-014A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU44-0002	1108447-010A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	SIM	UG/KG	IOA-SS-EU49-0002	1108447-008A	NM	08/10/2011	08/16/2011	10/03/2011	6	48	54
1108447	SIM	UG/KG	IOA-SS-EU23-0002	1108447-006A	NM	08/10/2011	08/16/2011	10/04/2011	6	49	55
1108447	PCB	%	IOA-SS-EU36-0002	1108447-003b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-DUP03-081011	1108447-004b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU23-0002	1108447-006b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU33-0002	1108447-014b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU34-0002	1108447-013b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU35-0002	1108447-005b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU43-0002	1108447-011b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU48-0002	1108447-009b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	PCB	%	IOA-SS-EU46-0002	1108447-002b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108447	PCB	%	IOA-SS-EU44-0002	1108447-010b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU42-0002	1108447-012b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU49-0002	1108447-008b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU45-0002	1108447-007b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	%	IOA-SS-EU47-0002	1108447-001b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108447	PCB	UG/KG	IOA-SS-EU33-0002	1108447-014b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU44-0002	1108447-010b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU43-0002	1108447-011b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU48-0002	1108447-009b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-DUP03-081011	1108447-004b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU36-0002	1108447-003b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU42-0002	1108447-012b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU35-0002	1108447-005b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU49-0002	1108447-008b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU34-0002	1108447-013b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU47-0002	1108447-001b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15
1108447	PCB	UG/KG	IOA-SS-EU23-0002	1108447-006b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9
1108447	PCB	UG/KG	IOA-SS-EU46-0002	1108447-002b	NM	08/10/2011	08/15/2011	08/25/2011	5	10	15

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	PCB	UG/KG	IOA-SS-EU45-0002	1108447-007b	NM	08/10/2011	08/17/2011	08/19/2011	7	2	9

NAS SOUTH WEYMOUTH
SOIL DATA
1108447

FRACTION	CHEMICAL	IOA-SS-EU46-0002	UNITS	IOA-SS-DUP03-081011	RPD	D	
PAH	ANTHRACENE	8 J	UG/KG	8 J	0.00	0.00	
PAH	BENZO(A)ANTHRACENE	33 J	UG/KG	31 J	6.25	2.00	
PAH	BENZO(A)PYRENE	35 J	UG/KG	38 J	8.22	3.00	
PAH	BENZO(B)FLUORANTHENE	53 J	UG/KG	56 J	5.50	3.00	
PAH	BENZO(G,H,I)PERYLENE	22 J	UG/KG	24 J	8.70	2.00	
PAH	BENZO(K)FLUORANTHENE	20 J	UG/KG	24 J	18.18	4.00	
PAH	CHRYSENE	38 J	UG/KG	44 J	14.63	6.00	
PAH	FLUORANTHENE	68 J	UG/KG	58 J	15.87	10.00	
PAH	PHENANTHRENE	29 J	UG/KG	23 J	23.08	6.00	
PAH	PYRENE	59 J	UG/KG	57 J	3.45	2.00	
PCB	AROCLOR-1260	5 J	UG/KG	ND	200.00	5.00	L2 vRL
PCB	TOTAL AROCLOR	5	UG/KG	4	22.22	1.00	

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

RTI LABORATORIES, INC.

Analytical Report

CLP-Like/Level IV Data Package
RTI Work Order 1108447

Prepared by:

RTI Laboratories, Inc.
31628 Glendale
Livonia, MI 48150

Contract No: N62470-08-D-1001
CTO: WE11

Tetra Tech, Inc.
Project Manager: Ms. Phoebe Call
250 Andover Street, Suite 200
Wilmington, MA 01887

Project: 112G02073 – Industrial Operations Area, Weymouth, MA

Reviewed and Approved By: _____ Date: November 17, 2011
Charles O'Bryan, Director Quality Management

RTI Laboratories, Inc. **Date:** *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/11/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 14 soil samples.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample extracts for PAH analyses were analyzed beyond the holding time.

Samples 1108425-007 was analyzed at a dilution due to oily appearing extract - reporting limits elevated.

Matrix interference with internal standards was noted in several samples. Samples were re-analyzed with internal standard responses consistent with the original analyses.

QUALITY CONTROL:

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Extraction Comments for SW_3550BNA, Sample 1108447-006A: Oily extract, could not concentrated to standard 1mL final volume - - reporting limits elevated.

Surrogate recoveries were within control limits except as noted below:

Sample ID	Nitrobenzene-d5	Terphenyl-d14
1108447-006		125%
1108447-011	104%	

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

Batch ID 43183:

- LCS-23237 recovery slightly elevated for Benzo(a)anthracene (110.05%).
- Sample ID 1108425-007AMSD recoveries exceeded control limits for Benzo(a)anthracene (128%), Benzo(a)pyrene (241.1%), Benzo(b)fluoranthene (128%), Chrysene (113%), Fluoranthene (137%), Phenanthrene (140%) and Pyrene (131%). RPDs are elevated, as well, for Fluroanthene (38.2%), Phenanthrene (47.0%) and Pyrene (33.2%).
- Sample ID 1108425-007AMSD – RPD results for Fluroanthene (38.2%), Phenanthrene (47.0%) and Pyrene (33.2%).

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits.

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

Batch ID 23326:

- Sample ID 1108447-005CMS/MSD recoveries and RPD results for Calcium, Aluminum, Iron, Magnesium and Manganese were affected by elevated concentrations in the sample.

Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

RTI Laboratories, Inc.

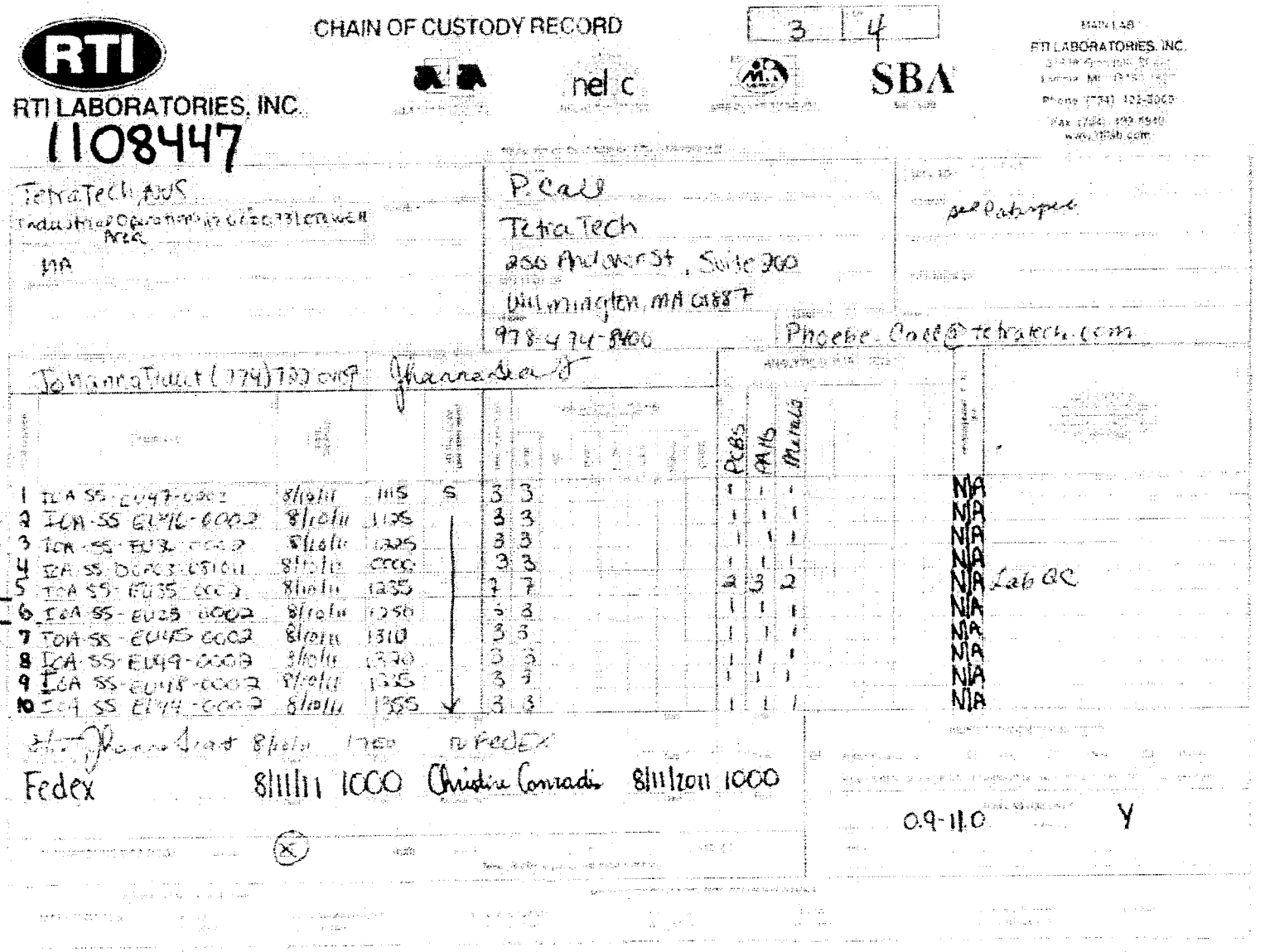
Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: _____ Date: 11/17/2011
Charles O'Bryan, Director, Quality Management



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

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nelac

SBA

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RTI LABORATORIES, INC.
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1108447

TetraTech, NUS
Industrial Operations Area
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978-474-8400

see Cabinet

Phoebe.Call@tetratech.com

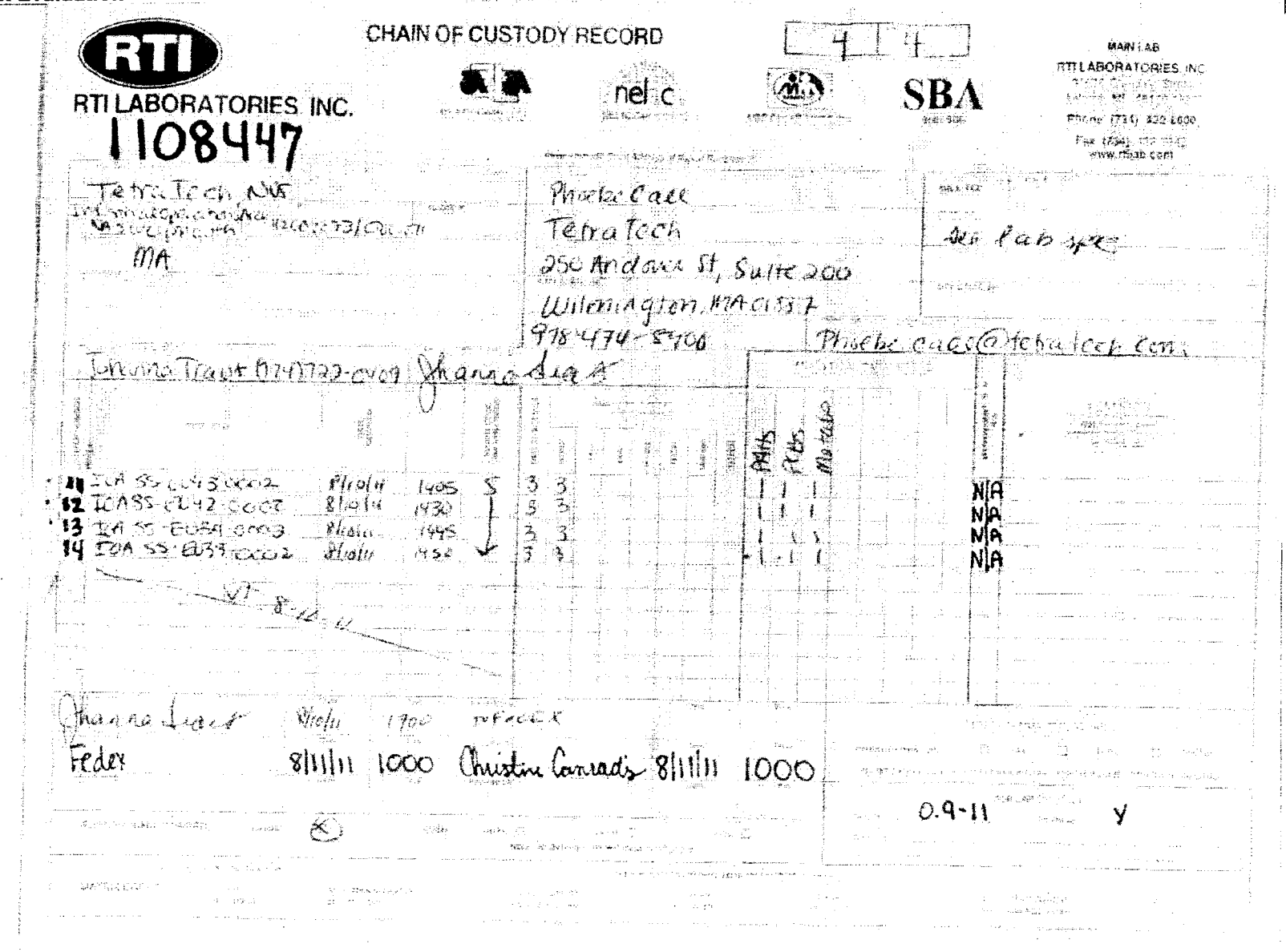
Johanna Trout (774) 722-0197 Johanna Trout

							PCBs	PAHs	Metals		
1	IOA SS-EU47-0002	8/10/11	1115	S	3	3	1	1	1	N/A	
2	IOA-SS EU46-0002	8/10/11	1125		3	3	1	1	1	N/A	
3	IOA-SS-EU36-0002	8/10/11	1225		3	3	1	1	1	N/A	
4	IOA SS DUP03-081011	8/10/11	0000		3	3	1	1	1	N/A	
5	IOA SS-EU35-0002	8/10/11	1235		7	7	2	3	2	N/A	Lab QC
6	IOA SS-EU23-0002	8/10/11	1250		3	3	1	1	1	N/A	
7	IOA-SS-EU45-0002	8/10/11	1310		3	3	1	1	1	N/A	
8	IOA-SS-EU49-0002	8/10/11	1320		3	3	1	1	1	N/A	
9	IOA SS-EU48-0002	8/10/11	1335		3	3	1	1	1	N/A	
10	IOA SS EU44-0002	8/10/11	1355		3	3	1	1	1	N/A	

Johanna Trout 8/10/11 1750 to FEDEX

Fedex 8/11/11 1000 Christine Conradis 8/11/2011 1000

0.9-11.0 Y



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

4 | 4

SBA

MAIN LAB
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1108447

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MA

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Johanna Trant (774)722-0409 Johanna Trant

							PAHs	PCBs	Metals	
11	IOA SS-EU43-0002	8/10/11	1405	S	3	3	1	1	1	N/A
12	IOA SS-EU42-0002	8/10/11	1430	↓	3	3	1	1	1	N/A
13	IOA SS-EU34-0003	8/10/11	1445	↓	3	3	1	1	1	N/A
14	IOA SS-EU33-0002	8/10/11	1450	↓	3	3	1	1	1	N/A

VT 8-10-11

Johanna Trant 8/10/11 1700 to FEDEX

Fedex 8/11/11 1000 Christine Conrad's 8/11/11 1000

0.9-11 Y

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108447

15-Nov-11

CLIENT: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108447-001	IOA-SS-EU47-0002		8/10/2011 11:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-001	IOA-SS-EU47-0002		8/10/2011 11:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-001	IOA-SS-EU47-0002		8/10/2011 11:15:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-002	IOA-SS-EU46-0002		8/10/2011 11:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-002	IOA-SS-EU46-0002		8/10/2011 11:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-002	IOA-SS-EU46-0002		8/10/2011 11:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-003	IOA-SS-EU36-0002		8/10/2011 12:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-003	IOA-SS-EU36-0002		8/10/2011 12:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-003	IOA-SS-EU36-0002		8/10/2011 12:25:00 AM	8/11/2011 10:00:00 AM	Soil
1108447-004	IOA-SS-DUP03-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108447-004	IOA-SS-DUP03-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108447-004	IOA-SS-DUP03-081011		8/10/2011	8/11/2011 10:00:00 AM	Soil
1108447-005	IOA-SS-EU35-0002		8/10/2011 12:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-005	IOA-SS-EU35-0002		8/10/2011 12:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-005	IOA-SS-EU35-0002		8/10/2011 12:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-006	IOA-SS-EU23-0002		8/10/2011 12:50:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-006	IOA-SS-EU23-0002		8/10/2011 12:50:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-006	IOA-SS-EU23-0002		8/10/2011 12:50:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-007	IOA-SS-EU45-0002		8/10/2011 1:10:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-007	IOA-SS-EU45-0002		8/10/2011 1:10:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-007	IOA-SS-EU45-0002		8/10/2011 1:10:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-008	IOA-SS-EU49-0002		8/10/2011 1:20:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-008	IOA-SS-EU49-0002		8/10/2011 1:20:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-008	IOA-SS-EU49-0002		8/10/2011 1:20:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-009	IOA-SS-EU48-0002		8/10/2011 1:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-009	IOA-SS-EU48-0002		8/10/2011 1:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-009	IOA-SS-EU48-0002		8/10/2011 1:35:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-010	IOA-SS-EU44-0002		8/10/2011 1:55:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-010	IOA-SS-EU44-0002		8/10/2011 1:55:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-010	IOA-SS-EU44-0002		8/10/2011 1:55:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-011	IOA-SS-EU43-0002		8/10/2011 2:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-011	IOA-SS-EU43-0002		8/10/2011 2:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-011	IOA-SS-EU43-0002		8/10/2011 2:05:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-012	IOA-SS-EU42-0002		8/10/2011 2:30:00 PM	8/11/2011 10:00:00 AM	Soil

RTI LABORATORIES, INC.

RTI
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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108447
15-Nov-11

CLIENT: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108447-012	IOA-SS-EU42-0002		8/10/2011 2:30:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-012	IOA-SS-EU42-0002		8/10/2011 2:30:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-013	IOA-SS-EU34-0002		8/10/2011 2:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-013	IOA-SS-EU34-0002		8/10/2011 2:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-013	IOA-SS-EU34-0002		8/10/2011 2:45:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-014	IOA-SS-EU33-0002		8/10/2011 2:50:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-014	IOA-SS-EU33-0002		8/10/2011 2:50:00 PM	8/11/2011 10:00:00 AM	Soil
1108447-014	IOA-SS-EU33-0002		8/10/2011 2:50:00 PM	8/11/2011 10:00:00 AM	Soil

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108447

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (2FP) #	SMC2 (FBP) #	SMC3 (NBZ) #	SMC4 (PHL) #	SMC5 (TBP) #	SMC6 (TPH) #			TOT OUT
01	MB-23237	82	91	96	90	88	101			0
02	LCS-23237	84	88	90	91	97	94			0
03	MS	80	77	79	83	101	94			0
04	MSD	72	74	71	73	97	89			0
05	IOA-SS-EU46-0002		80	79			89			0
06	IOA-SS-EU35-0002		82	81			89			0
07	IOA-SS-EU35-0002MS	82	84	85	86	102	92			0
08	IOA-SS-EU35-0002MS	76	80	80	80	98	89			0
09	IOA-SS-EU49-0002		88	90			92			0
10	IOA-SS-EU42-0002		89	91			96			0
11	IOA-SS-EU34-0002		91	92			96			0
12	IOA-SS-DUP03-08101		88	84			99			0
13	IOA-SS-EU43-0002		100	104 *			109			1
14	IOA-SS-EU33-0002		84	87			100			0
15	IOA-SS-EU47-0002		77	74			90			0
16	IOA-SS-EU44-0002		98	97			114			0
17	IOA-SS-EU45-0002		92	85			117			0
18	IOA-SS-EU36-0002		76	72			92			0
19	IOA-SS-EU48-0002		89	86			112			0
20	IOA-SS-EU23-0002		89	83			125 *			1
21	MB-23239	62	70	79	70	73	75			0
22	LCS-23239	67	67	75	74	80	76			0

			QC Limit
SMC 1	(2FP)	= 2-Fluorophenol	35-105
SMC 2	(FBP)	= 2-Fluorobiphenyl	45-105
SMC 3	(NBZ)	= Nitrobenzene-d5	35-100
SMC 4	(PHL)	= Phenol-d5	40-100
SMC 5	(TBP)	= 2,4,6-Tribromophenol	35-125
SMC 6	(TPH)	= Terphenyl-d14	30-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

4B

EPA SAMPLE NO.

MB-23237

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108447

Lab File ID: 09301113.D Lab Sample ID: MB-23237

Instrument ID: SVOC6 Date Extracted 8/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 9/30/2011

Level: (low/med) Time Analyzed 17:19

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	LCS-23237	LCS-23237	09301114.D	9/30/2011
2	MS	1108425-007AMS	09301117.D	9/30/2011
3	MSD	1108425-007AMSD	09301125.D	9/30/2011
4	DA-SS-EU46-000	1108447-002A	10031108.D	10/3/2011
5	DA-SS-EU49-000	1108447-008A	10031112.D	10/3/2011
6	A-SS-DUP03-081	1108447-004A	10031116.D	10/3/2011
7	ZZZZZ	1108425-001A	10041112.D	10/4/2011
8	DA-SS-EU47-000	1108447-001A	10041119.D	10/4/2011
9	DA-SS-EU44-000	1108447-010A	10041120.D	10/4/2011
10	DA-SS-EU45-000	1108447-007A	10041121.D	10/4/2011
11	DA-SS-EU36-000	1108447-003A	10041122.D	10/4/2011
12	DA-SS-EU48-000	1108447-009A	10041124.D	10/4/2011
13	DA-SS-EU23-000	1108447-006A	10041125.D	10/4/2011

COMMENTS: _____

_____

RTI LABORATORIES, INC.

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QC SUMMARY REPORT

WO#: **1108447**

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_8270S**

Sample ID: **MB-23237**	SampType: **MBLK**	TestCode: **SW_8270S**	Units: **µg/Kg**	Prep Date: **8/16/2011**	RunNo: **43183**
Client ID: **PBS**	Batch ID: **23237**	TestNo: **SW8270C**	**SW3550C**	Analysis Date: **9/30/2011**	SeqNo: **841551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	160									UH
Acenaphthene	ND	160									UH
Acenaphthylene	ND	160									UH
Anthracene	ND	160									UH
Benzo(a)anthracene	ND	160									UH
Benzo(a)pyrene	ND	160									UH
Benzo(b)fluoranthene	ND	160									UH
Benzo(g,h,i)perylene	ND	160									UH
Benzo(k)fluoranthene	ND	160									UH
Chrysene	ND	160									UH
Dibenzo (a,h) anthracene	ND	160									UH
Fluoranthene	ND	160									UH
Fluorene	ND	160									UH
Indeno(1,2,3-cd)pyrene	ND	160									UH
Naphthalene	ND	160									UH
Phenanthrene	ND	160									UH
Pyrene	ND	160									UH
Surr: 2,4,6-Tribromophenol	730		832.5		88.2	35	125				H
Surr: 2-Fluorobiphenyl	760		832.5		91.3	45	105				H
Surr: 2-Fluorophenol	680		832.5		82.0	35	105				H
Surr: Nitrobenzene-d5	800		832.5		95.6	35	100				H
Surr: Phenol-d5	750		832.5		89.6	40	100				H
Surr: Terphenyl-d14	840		832.5		101	30	125				H

Qualifiers:

*X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: **1108447**

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: LCS-23237	SampType: LCS	TestCode: SW_8270S	Units: µg/Kg	Prep Date: 8/16/2011	RunNo: 43183
Client ID: LCSS	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011	SeqNo: 841552

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	590	160	665.3	0	88.7	45	105				H
Acenaphthene	630	160	665.3	0	95.1	45	110				H
Acenaphthylene	620	160	665.3	0	93.6	45	105				H
Anthracene	620	160	665.3	0	93.6	55	105				H
Benzo(a)anthracene	730	160	665.3	0	110	50	110				SH
Benzo(a)pyrene	630	160	665.3	0	94.2	50	110				H
Benzo(b)fluoranthene	600	160	665.3	0	90.0	45	115				H
Benzo(g,h,i)perylene	630	160	665.3	0	94.8	40	125				H
Benzo(k)fluoranthene	720	160	665.3	0	108	45	125				H
Chrysene	660	160	665.3	0	99.4	55	110				H
Dibenzo (a,h) anthracene	690	160	665.3	0	104	40	125				H
Fluoranthene	630	160	665.3	0	95.2	55	115				H
Fluorene	650	160	665.3	0	97.7	50	110				H
Indeno(1,2,3-cd)pyrene	680	160	665.3	0	102	40	120				H
Naphthalene	590	160	665.3	0	89.3	40	105				H
Phenanthrene	610	160	665.3	0	91.5	50	110				H
Pyrene	630	160	665.3	0	94.5	45	125				H
Surr: 2,4,6-Tribromophenol	810		831.7		97.2	35	125				H
Surr: 2-Fluorobiphenyl	730		831.7		87.8	45	105				H
Surr: 2-Fluorophenol	700		831.7		83.6	35	105				H
Surr: Nitrobenzene-d5	750		831.7		89.8	35	100				H
Surr: Phenol-d5	750		831.7		90.6	40	100				H
Surr: Terphenyl-d14	790		831.7		94.4	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02

TestCode: SW_8270S

Sample ID: 1108425-007AMS	SampType: MS	TestCode: SW_8270S	Units: µg/Kg-dry	Prep Date: 8/16/2011		RunNo: 43183	
Client ID: ZZZZZZ	Batch ID: 23237	TestNo: SW8270C	SW3550C	Analysis Date: 9/30/2011		SeqNo: 841555	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	640	190	774.4	11.13	81.3	45	105				H
Acenaphthene	690	190	774.4	57.96	81.5	45	110				H
Acenaphthylene	670	190	774.4	0	86.4	45	105				H
Anthracene	770	190	774.4	91.36	87.6	55	105				H
Benzo(a)anthracene	1,100	190	774.4	273.3	102	50	110				H
Benzo(a)pyrene	940	190	774.4	241.1	89.7	50	110				H
Benzo(b)fluoranthene	1,100	190	774.4	336.3	93.6	45	115				H
Benzo(g,h,i)perylene	660	190	774.4	94.82	73.6	40	125				H
Benzo(k)fluoranthene	900	190	774.4	109.8	102	45	125				H
Chrysene	970	190	774.4	284.4	88.8	55	110				H
Dibenzo (a,h) anthracene	690	190	774.4	34.55	84.3	40	125				H
Fluoranthene	1,100	190	774.4	577.7	69.3	55	115				H
Fluorene	700	190	774.4	52.21	84.1	50	110				H
Indeno(1,2,3-cd)pyrene	730	190	774.4	87.14	82.4	40	120				H
Naphthalene	640	190	774.4	15.74	80.3	40	105				H
Phenanthrene	920	190	774.4	400.8	66.8	50	110				H
Pyrene	1,100	190	774.4	476.0	76.3	45	125				H
Surr: 2,4,6-Tribromophenol	980		968.0		101	35	125				H
Surr: 2-Fluorobiphenyl	750		968.0		77.5	45	105				H
Surr: 2-Fluorophenol	780		968.0		80.3	35	105				H
Surr: Nitrobenzene-d5	770		968.0		79.1	35	100				H
Surr: Phenol-d5	800		968.0		82.8	40	100				H
Surr: Terphenyl-d14	910		968.0		93.9	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: 1108425-007AMSD SampType: MSD TestCode: SW_8270S Units: µg/Kg-dry Prep Date: 8/16/2011 RunNo: 43183

Client ID: ZZZZZZ Batch ID: 23237 TestNo: SW8270C SW3550C Analysis Date: 9/30/2011 SeqNo: 841563

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	620	190	773.9	11.13	78.9	45	105	640.4	3.01	25	H
Acenaphthene	750	190	773.9	57.96	89.6	45	110	688.8	8.64	25	H
Acenaphthylene	630	190	773.9	0	81.0	45	105	669.1	6.52	25	H
Anthracene	880	190	773.9	91.36	102	55	105	769.4	13.5	25	H
Benzo(a)anthracene	1,300	190	773.9	273.3	128	50	110	1,063	17.5	25	SH
Benzo(a)pyrene	1,100	190	773.9	241.1	118	50	110	935.8	19.2	25	SH
Benzo(b)fluoranthene	1,300	190	773.9	336.3	128	45	115	1,061	22.5	25	SH
Benzo(g,h,i)perylene	570	190	773.9	94.82	61.3	40	125	664.4	15.4	25	H
Benzo(k)fluoranthene	1,000	190	773.9	109.8	120	45	125	899.8	14.3	25	H
Chrysene	1,200	190	773.9	284.4	113	55	110	971.9	17.6	25	SH
Dibenzo (a,h) anthracene	550	190	773.9	34.55	67.0	40	125	687.3	21.7	25	H
Fluoranthene	1,600	190	773.9	577.7	137	55	115	1,114	36.2	25	SRH
Fluorene	750	190	773.9	52.21	90.4	50	110	703.5	6.58	25	H
Indeno(1,2,3-cd)pyrene	660	190	773.9	87.14	73.4	40	120	725.2	10.2	25	H
Naphthalene	590	190	773.9	15.74	74.7	40	105	637.3	7.05	25	H
Phenanthrene	1,500	190	773.9	400.8	140	50	110	918.4	47.0	25	SRH
Pyrene	1,500	190	773.9	476.0	131	45	125	1,067	33.2	25	SRH
Surr: 2,4,6-Tribromophenol	940		967.3		97.1	35	125		0	25	H
Surr: 2-Fluorobiphenyl	720		967.3		74.3	45	105		0	25	H
Surr: 2-Fluorophenol	690		967.3		71.7	35	105		0	25	H
Surr: Nitrobenzene-d5	690		967.3		71.1	35	100		0	25	H
Surr: Phenol-d5	710		967.3		73.2	40	100		0	25	H
Surr: Terphenyl-d14	860		967.3		89.3	30	125		0	25	H

Qualifiers:

- */X Value exceeds Maximum Contaminant Level
- J Estimated concentration
- R RPD outside accepted recovery limits
- E Value above quantitation range
- M Manual Integration used to determine area response
- RL Reporting Limit
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits

EPA SAMPLE NO.

MB-23239

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108447

Lab File ID: 10071115.D Lab Sample ID: MB-23239

Instrument ID: SVOC6 Date Extracted 8/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 10/7/2011

Level: (low/med) Time Analyzed 12:07

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	OA-SS-EU35-000	1108447-005A	10031109.D	10/3/2011
2	A-SS-EU35-0002M	1108447-005A	10031110.D	10/3/2011
3	-SS-EU35-0002M	1108447-005A	10031111.D	10/3/2011
4	OA-SS-EU42-000	1108447-012A	10031113.D	10/3/2011
5	OA-SS-EU34-000	1108447-013A	10031114.D	10/3/2011
6	OA-SS-EU43-000	1108447-011A	10031117.D	10/3/2011
7	OA-SS-EU33-000	1108447-014A	10031118.D	10/3/2011
8	ZZZZZ	1108447-011A	10041107.D	10/4/2011
9	LCS-23239	LCS-23239	10071116.D	10/7/2011

COMMENTS: _____

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QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: MB-23239	SampType: MBLK	TestCode: SW_8270s	Units: µg/Kg	Prep Date: 8/16/2011		RunNo: 43344	
Client ID: PBS	Batch ID: 23239	TestNo: SW8270C	SW3550C	Analysis Date: 10/7/2011		SeqNo: 846312	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	160									H
Acenaphthene	ND	160									H
Acenaphthylene	ND	160									H
Anthracene	ND	160									H
Benzo(a)anthracene	ND	160									H
Benzo(a)pyrene	ND	160									H
Benzo(b)fluoranthene	ND	160									H
Benzo(g,h,i)perylene	ND	160									H
Benzo(k)fluoranthene	ND	160									H
Chrysene	ND	160									H
Dibenzo (a,h) anthracene	ND	160									H
Fluoranthene	ND	160									H
Fluorene	ND	160									H
Indeno(1,2,3-cd)pyrene	ND	160									H
Naphthalene	ND	160									H
Phenanthrene	ND	160									H
Pyrene	ND	160									H
Surr: 2,4,6-Tribromophenol	610		829.7		73.4	35	125				H
Surr: 2-Fluorobiphenyl	580		829.7		70.2	45	105				H
Surr: 2-Fluorophenol	520		829.7		62.2	35	105				H
Surr: Nitrobenzene-d5	650		829.7		78.5	35	100				H
Surr: Phenol-d5	580		829.7		70.1	40	100				H
Surr: Terphenyl-d14	630		829.7		75.4	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8270S

Sample ID: LCS-23239	SampType: LCS	TestCode: SW_8270s	Units: µg/Kg	Prep Date: 8/16/2011	RunNo: 43344
Client ID: LCSS	Batch ID: 23239	TestNo: SW8270C	SW3550C	Analysis Date: 10/7/2011	SeqNo: 846313

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	470	160	662.5	0	70.4	45	105				H
Acenaphthene	490	160	662.5	0	73.9	45	110				H
Acenaphthylene	480	160	662.5	0	72.1	45	105				H
Anthracene	470	160	662.5	0	71.2	55	105				H
Benzo(a)anthracene	590	160	662.5	0	89.0	50	110				H
Benzo(a)pyrene	520	160	662.5	0	78.3	50	110				H
Benzo(b)fluoranthene	550	160	662.5	0	83.2	45	115				mH
Benzo(g,h,i)perylene	500	160	662.5	0	75.1	40	125				H
Benzo(k)fluoranthene	550	160	662.5	0	83.7	45	125				H
Chrysene	500	160	662.5	0	75.8	55	110				H
Dibenzo (a,h) anthracene	540	160	662.5	0	80.8	40	125				H
Fluoranthene	520	160	662.5	0	78.0	55	115				H
Fluorene	500	160	662.5	0	75.3	50	110				H
Indeno(1,2,3-cd)pyrene	540	160	662.5	0	82.2	40	120				H
Naphthalene	470	160	662.5	0	71.0	40	105				H
Phenanthrene	490	160	662.5	0	73.9	50	110				H
Pyrene	510	160	662.5	0	77.7	45	125				H
Surr: 2,4,6-Tribromophenol	660		828.1		80.2	35	125				H
Surr: 2-Fluorobiphenyl	560		828.1		67.1	45	105				H
Surr: 2-Fluorophenol	550		828.1		66.8	35	105				H
Surr: Nitrobenzene-d5	620		828.1		74.7	35	100				H
Surr: Phenol-d5	610		828.1		73.8	40	100				H
Surr: Terphenyl-d14	630		828.1		76.1	30	125				H

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: 1108447
15-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02
TestCode: SW_8270S

Sample ID: 1108447-005AMS | SampType: MS | TestCode: SW_8270S | Units: µg/Kg-dry | Prep Date: 8/16/2011 | RunNo: 43218
Client ID: IOA-SS-EU35-0002 | Batch ID: 23239 | TestNo: SW8270C | SW3550C | Analysis Date: 10/3/2011 | SeqNo: 846293

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	630	170	713.3	0	89.0	45	105				H
Acenaphthene	650	170	713.3	0	90.7	45	110				H
Acenaphthylene	640	170	713.3	0	89.7	45	105				H
Anthracene	640	170	713.3	0	90.2	55	105				H
Benzo(a)anthracene	660	170	713.3	0	92.5	50	110				H
Benzo(a)pyrene	670	170	713.3	0	94.6	50	110				H
Benzo(b)fluoranthene	720	170	713.3	7.839	99.4	45	115				mH
Benzo(g,h,i)perylene	600	170	713.3	0	83.9	40	125				H
Benzo(k)fluoranthene	690	170	713.3	0	96.0	45	125				H
Chrysene	680	170	713.3	0	95.5	55	110				H
Dibenzo (a,h) anthracene	640	170	713.3	0	89.2	40	125				H
Fluoranthene	680	170	713.3	7.839	93.8	55	115				H
Fluorene	670	170	713.3	0	94.5	50	110				H
Indeno(1,2,3-cd)pyrene	630	170	713.3	0	88.7	40	120				H
Naphthalene	610	170	713.3	0	84.9	40	105				H
Phenanthrene	650	170	713.3	0	91.5	50	110				H
Pyrene	700	170	713.3	0	98.3	45	125				H
Surr: 2,4,6-Tribromophenol	910		891.6		102	35	125				H
Surr: 2-Fluorobiphenyl	750		891.6		83.6	45	105				H
Surr: 2-Fluorophenol	730		891.6		81.5	35	105				H
Surr: Nitrobenzene-d5	750		891.6		84.6	35	100				H
Surr: Phenol-d5	770		891.6		86.0	40	100				H
Surr: Terphenyl-d14	820		891.6		91.6	30	125				H

Qualifiers:
*/X Value exceeds Maximum Contaminant Level
J Estimated concentration
R RPD outside accepted recovery limits
E Value above quantitation range
M Manual Integration used to determine area response
RL Reporting Limit
H Holding times for preparation or analysis exceeds
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits

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QC SUMMARY REPORT

WO#: 1108447
15-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02

TestCode: SW_8270S

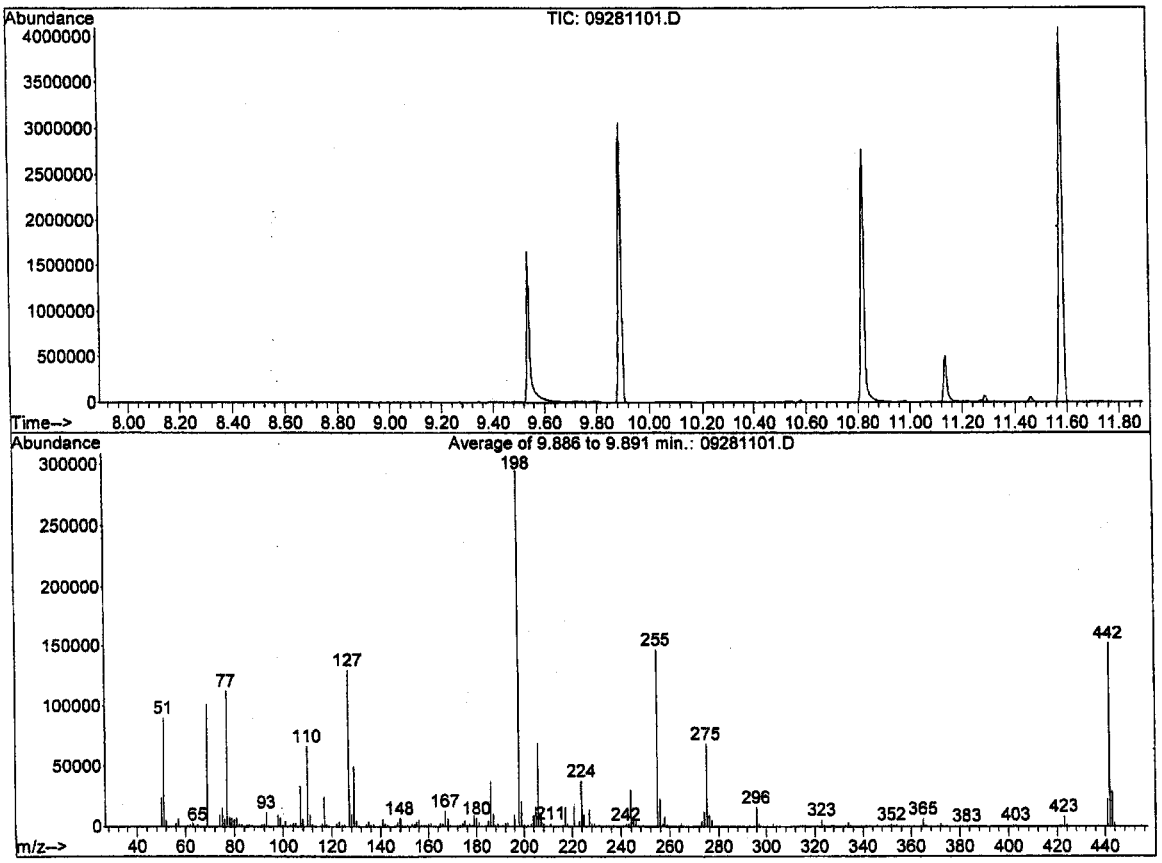
Sample ID: 1108447-005AMSD | SampType: MSD | TestCode: SW_8270S | Units: µg/Kg-dry | Prep Date: 8/16/2011 | RunNo: 43218
Client ID: IOA-SS-EU35-0002 | Batch ID: 23239 | TestNo: SW8270C | SW3550C | Analysis Date: 10/3/2011 | SeqNo: 846294

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	590	170	711.0	0	82.9	45	105	634.8	7.37	25	H
Acenaphthene	600	170	711.0	0	84.8	45	110	647.0	7.06	25	H
Acenaphthylene	600	170	711.0	0	84.1	45	105	640.2	6.77	25	H
Anthracene	610	170	711.0	0	86.2	55	105	643.8	4.92	25	H
Benzo(a)anthracene	640	170	711.0	0	89.6	50	110	660.2	3.52	25	H
Benzo(a)pyrene	650	170	711.0	0	91.3	50	110	674.8	3.88	25	H
Benzo(b)fluoranthene	680	170	711.0	7.839	94.8	45	115	716.5	4.97	25	mH
Benzo(g,h,i)perylene	570	170	711.0	0	80.6	40	125	598.8	4.34	25	H
Benzo(k)fluoranthene	660	170	711.0	0	92.5	45	125	685.1	4.10	25	H
Chrysene	640	170	711.0	0	90.6	55	110	681.2	5.60	25	H
Dibenzo (a,h) anthracene	610	170	711.0	0	86.0	40	125	636.6	3.98	25	H
Fluoranthene	650	170	711.0	7.839	89.9	55	115	676.6	4.42	25	H
Fluorene	640	170	711.0	0	89.5	50	110	674.1	5.77	25	H
Indeno(1,2,3-cd)pyrene	610	170	711.0	0	85.3	40	120	632.7	4.18	25	H
Naphthalene	560	170	711.0	0	79.3	40	105	605.6	7.09	25	H
Phenanthrene	620	170	711.0	0	86.8	50	110	652.7	5.55	25	H
Pyrene	670	170	711.0	0	93.8	45	125	701.5	5.01	25	H
Surr: 2,4,6-Tribromophenol	870		888.7		97.8	35	125		0	25	H
Surr: 2-Fluorobiphenyl	720		888.7		80.5	45	105		0	25	H
Surr: 2-Fluorophenol	680		888.7		76.4	35	105		0	25	H
Surr: Nitrobenzene-d5	710		888.7		80.4	35	100		0	25	H
Surr: Phenol-d5	710		888.7		80.2	40	100		0	25	H
Surr: Terphenyl-d14	790		888.7		89.3	30	125		0	25	H

Qualifiers:
*/X Value exceeds Maximum Contaminant Level
J Estimated concentration
R RPD outside accepted recovery limits
E Value above quantitation range
M Manual Integration used to determine area response
RL Reporting Limit
H Holding times for preparation or analysis exceeds
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits

DFTPP

Data File : C:\HPCHEM\2\DATA\092811\09281101.D Vial: 76
Acq On : 28 Sep 2011 9:22 am Operator: Michael Truchan
Sample : TUNE1 S5 092711 Inst : SVOC 5
Misc : TUNE DFTPP_TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS



Spectrum Information: Average of 9.886 to 9.891 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	30.6	90272	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.6	607	PASS
127	198	40	60	44.0	129776	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	295008	PASS
199	198	5	9	7.0	20555	PASS
275	198	10	30	23.3	68776	PASS
365	198	1	100	2.1	6316	PASS
441	443	0.01	100	77.6	22975	PASS
442	198	40	100	51.7	152660	PASS
443	442	17	23	19.4	29612	PASS

09281101.D 092811S5.M Thu Sep 29 12:20:44 2011

Response Factor Report SVOC 5

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:39:40 2011
Response via : Initial Calibration

Calibration Files
1 =09281103.D 2.5 =09281104.D 5 =09281105.D
10 =09281106.D 15 =09281107.D 20 =09281108.D

		Compound	1	2.5	5	10	15	20	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------			ISTD	----------			
2)	T	N-Nitrosodimethylam	0.603	0.628	0.664	0.695	0.689	0.702	0.674	5.83
3)	T	Pyridine	1.266	1.282	1.317	1.355	1.330	1.351	1.314	2.69
4)	S	2-Fluorophenol	1.150	1.136	1.199	1.258	1.225	1.240	1.192	4.37
5)	T	N-Nitrosodiethylami	0.407	0.440	0.470	0.491	0.485	0.496	0.474	7.15
6)	S	Phenol-d5	1.435	1.411	1.476	1.527	1.496	1.505	1.460	4.24
7)	T,P	Phenol	1.479	1.506	1.552	1.607	1.586	1.590	1.527	6.12
8)	T	Aniline	1.303	1.283	1.134	1.241	1.405	1.646	1.397	16.36
9)	T,P	bis(2-Chloroethyl)	1.241	1.283	1.369	1.385	1.347	1.267	1.281	6.51
10)	T	n-Decane	1.324	1.312	1.350	1.353	1.305	1.304	1.292	5.95
11)	T,P	2-Chlorophenol	1.228	1.246	1.312	1.359	1.329	1.350	1.307	3.86
12)	T	1,3-Dichlorobenzene	1.533	1.485	1.548	1.565	1.542	1.550	1.521	3.22
13)	T	1,4-Dichlorobenzene	1.578	1.537	1.556	1.541	1.510	1.518	1.510	4.85
14)	T	Benzyl alcohol	0.636	0.674	0.766	0.789	0.783	0.815	0.760	9.03
15)	T	1,2-Dichlorobenzene	1.474	1.451	1.477	1.482	1.443	1.444	1.441	3.86
16)	T,P	2-Methylphenol	0.955	0.949	0.995	1.004	0.983	0.976	0.961	4.74
17)	T	bis(2-Chloroisoprop	1.619	1.614	1.625	1.606	1.552	1.539	1.539	8.00
18)	T,P	4-Methylphenol	1.223	1.239	1.247	1.255	1.181	1.185	1.177	8.87
19)	T,P	N-Nitrosodipropylam	0.559	0.592	0.608	0.612	0.583	0.573	0.574	6.71
20)	T	o-Toluidine	1.411	1.278	1.175	1.185	1.347	1.608	1.397	13.31
21)	T,P	Hexachloroethane	0.517	0.520	0.538	0.536	0.532	0.527	0.523	3.20
22)	I	Naphthalene-d8	----------			ISTD	----------			
23)	S	Nitrobenzene-d5	0.335	0.345	0.368	0.368	0.364	0.367	0.358	3.68
24)	T,P	Nitrobenzene	0.345	0.347	0.364	0.367	0.363	0.364	0.354	3.96
25)	T,P	Isophorone	0.668	0.668	0.693	0.692	0.682	0.677	0.673	3.22
26)	T,P	2-Nitrophenol	0.159	0.181	0.207	0.215	0.214	0.218	0.204	10.83
27)	T,P	2,4-Dimethylphenol	0.317	0.337	0.351	0.349	0.339	0.338	0.334	4.90
28)	T	Benzoic acid				0.075	0.083	0.084	0.058	56.75
29)	T,P	bis(2-Chloroethoxy)	0.420	0.424	0.443	0.440	0.429	0.425	0.423	4.45
30)	T,P	2,4-Dichlorophenol	0.298	0.311	0.331	0.341	0.339	0.339	0.326	5.22
31)	T	1,2,4-Trichlorobenz	0.415	0.406	0.420	0.415	0.402	0.402	0.400	5.84
32)	T	4-Chlorophenol			1.189	1.174	1.116	1.108	1.093	9.60
33)	T,P	Naphthalene	1.217	1.174	1.189	1.174	1.116	1.108	1.118	9.05
34)	T,P	4-Chloroaniline		0.291	0.234	0.221	0.250	0.301	0.288	20.04
35)	T	2,6-Dichlorophenol	0.325	0.323	0.342	0.347	0.338	0.337	0.330	5.11
36)	T,P	Hexachlorobutadiene	0.234	0.224	0.229	0.231	0.224	0.222	0.221	6.87
37)	T,P	4-Chloro-3-methylph	0.248	0.267	0.285	0.295	0.289	0.292	0.280	6.03
38)	T,P	2-Methylnaphthalene	0.804	0.811	0.827	0.813	0.781	0.774	0.773	8.38
39)	I	Acenaphthene-d10	----------			ISTD	----------			
40)	T,P	Hexachlorocyclopent		0.179	0.249	0.305	0.323	0.338	0.293	19.98
41)	T,P	1,2,4,5-Tetrachloro	0.687	0.700	0.723	0.710	0.680	0.676	0.669	9.10
42)	T,P	2,4,6-Trichlorophen	0.346	0.383	0.409	0.422	0.419	0.424	0.400	6.95
43)	T,P	2,4,5-Trichlorophen	0.364	0.405	0.447	0.468	0.461	0.464	0.435	8.60
44)	S	2-Fluorobiphenyl	1.579	1.609	1.643	1.598	1.518	1.517	1.516	9.18
45)	T,P	2-Chloronaphthalene	1.584	1.622	1.574	1.485	1.446	1.459	1.500	6.27
46)	T,P	1-Chloronaphthalene	1.231	1.208	1.266	1.258	1.205	1.166	1.148	13.03
47)	T,P	2-Nitroaniline			0.385	0.410	0.413	0.425	0.412	3.52
48)	T,P	Dimethyl phthalate	1.373	1.409	1.413	1.414	1.366	1.377	1.373	3.29
49)	T,P	2,6-Dinitrotoluene		0.271	0.304	0.325	0.325	0.335	0.315	7.02
50)	T,P	Acenaphthylene	2.046	2.069	2.118	2.106	2.021	1.979	1.986	7.97
51)	T,P	3-Nitroaniline		0.233	0.227	0.228	0.238	0.259	0.255	13.13
52)	T,P	Acenaphthene	1.287	1.274	1.272	1.259	1.209	1.198	1.200	9.04
53)	T,P	2,4-Dinitrophenol			0.007	0.035	0.056	0.072	0.064	65.68
54)	T,P	4-Nitrophenol	0.054	0.091	0.118	0.145	0.180	0.177	0.135	36.71
55)	T	Pentachlorobenzene	0.606	0.602	0.608	0.605	0.580	0.574	0.575	7.77

56)	T,P	2,4-Dinitrotoluene		0.291	0.346	0.390	0.393	0.406	0.373	11.14
57)	T,P	Dibenzofuran	1.844	1.864	1.864	1.837	1.750	1.740	1.740	9.57
58)	T,P	2,3,4,6-Tetrachloro		0.219	0.277	0.321	0.331	0.349	0.311	15.23
59)	T,P	Diethyl phthalate	1.304	1.309	1.337	1.331	1.281	1.291	1.282	4.78
60)	T,P	4-Chlorophenyl phen	0.734	0.762	0.775	0.767	0.738	0.739	0.728	7.89
61)	T,P	Fluorene	1.512	1.521	1.515	1.485	1.401	1.367	1.389	12.21
62)	T,P	4-Nitroaniline	0.254	0.280	0.281	0.272	0.256	0.281	0.277	5.95
63)	S	2,4,6-Tribromopheno		0.180	0.201	0.216	0.209	0.209	0.199	7.68
64)	I	Phenanthrene-d10	----------ISTD----------							
65)	T,P	4,6-Dinitro-2-methy			0.041	0.078	0.096	0.111	0.098	35.70
66)	T,P	N-Nitrosodiphenylam	0.812	0.796	0.804	0.788	0.755	0.736	0.752	9.12
67)	T	Azobenzene	0.783	0.773	0.792	0.769	0.730	0.730	0.736	8.45
68)	T,P	4-Bromophenyl pheny	0.294	0.286	0.289	0.288	0.273	0.271	0.274	7.91
69)	T,P	Hexachlorobenzene	0.323	0.320	0.323	0.318	0.304	0.297	0.302	8.99
70)	T,P	Pentachlorophenol		0.001	0.011	0.048	0.073	0.090	0.063	69.81
71)	T	Pentachloronitroben	0.076	0.088	0.095	0.095	0.091	0.090	0.087	10.06
72)	T	n-Octadecane		0.491	0.488	0.445	0.399	0.368	0.420	15.57
73)	T,P	Phenanthrene	1.371	1.322	1.339	1.291	1.227	1.197	1.229	11.43
74)	T,P	Anthracene	1.375	1.378	1.384	1.359	1.298	1.262	1.283	10.41
75)	T,P	Carbazole	1.155	1.010	1.054	1.036	1.037	1.068	1.047	5.88
76)	T,P	Di-n-butyl phthalat	1.322	1.339	1.396	1.406	1.357	1.318	1.310	8.19
77)	T,P	Fluoranthene	1.432	1.430	1.478	1.472	1.410	1.383	1.375	9.42
78)	T	Benzidine				0.253	0.248	0.286	0.320	32.55
79)	I	Chrysene-d12	----------ISTD----------							
80)	T,P	Pyrene	1.361	1.373	1.454	1.453	1.399	1.405	1.382	5.18
81)	S	Terphenyl-d14	0.974	0.987	1.025	1.026	0.980	0.981	0.972	5.86
82)	T,P	Butyl benzyl phthal	0.503	0.515	0.558	0.580	0.569	0.578	0.553	5.56
83)	T,P	3,3'-Dichlorobenzid	0.942	0.900	0.957	0.975	0.917	0.947	0.922	4.80
84)	T,P	bis(2-Ethylhexyl) p	0.673	0.708	0.766	0.791	0.777	0.779	0.747	5.76
85)	T,P	Benz(a)anthracene	1.391	1.311	1.334	1.322	1.278	1.276	1.296	4.61
86)	T,P	Chrysene	1.206	1.190	1.203	1.192	1.149	1.160	1.157	5.21
87)	T,P	Di-n-octyl phthalat	1.000	1.057	1.192	1.294	1.317	1.355	1.238	11.40
88)	I	Perylene-d12	----------ISTD----------							
89)	T,P	Benzo(b)fluoranthen	1.274	1.335	1.341	1.398	1.326	1.330	1.318	4.19
90)	T,P	Benzo(k)fluoranthen	1.287	1.247	1.312	1.249	1.224	1.193	1.199	9.73
91)	T,P	Benzo(a)pyrene	1.108	1.161	1.188	1.213	1.195	1.211	1.170	3.90
92)	T,P	Indeno(1,2,3-cd)pyr	1.201	1.236	1.300	1.335	1.311	1.332	1.278	4.42
93)	T,P	Dibenz(a,h)anthrace	1.008	1.019	1.086	1.111	1.082	1.083	1.049	5.08
94)	T,P	Benzo(g,h,i)perylen	1.001	1.040	1.093	1.127	1.116	1.139	1.086	4.56

(#) = Out of Range ### Number of calibration levels exceeded format ###

092811S5.M Thu Sep 29 12:20:50 2011

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\092811\09281111.D Vial: 85
Acq On : 28 Sep 2011 2:23 pm Operator: Michael Truchan
Sample : ICV S5 092811 Inst : SVOC 5
Misc : ICAL SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
2	T	N-Nitrosodimethylamine	0.674	0.657	2.5	95	0.00
3	T	Pyridine	1.314	1.324	-0.8	102	0.00
4	S	2-Fluorophenol	1.192	0.624	47.7#	53	0.00
5	T	N-Nitrosodiethylamine	0.474	0.514	-8.4	105	0.00
6	S	Phenol-d5	1.460	0.731	49.9#	50	0.00
7	T,P	Phenol	1.527	1.567	-2.6	102	0.00
8	T	Aniline	1.397	1.880	-34.6#	109	0.00
9	T,P	bis(2-Chloroethyl) ether	1.281	1.174	8.4	100	0.00
10	T	n-Decane	1.292	1.940	-50.2#	157#	0.00
11	T,P	2-Chlorophenol	1.307	1.319	-0.9	100	0.00
12	T	1,3-Dichlorobenzene	1.521	1.468	3.5	98	0.00
13	T	1,4-Dichlorobenzene	1.510	1.432	5.2	98	0.00
14	T	Benzyl alcohol	0.760	0.785	-3.3	97	0.00
15	T	1,2-Dichlorobenzene	1.441	1.402	2.7	100	0.00
16	T,P	2-Methylphenol	0.961	0.920	4.3	98	0.00
17	T	bis(2-Chloroisopropyl) ethe	1.539	1.467	4.7	100	0.00
18	T,P	4-Methylphenol	1.177	1.083	8.0	96	0.00
19	T,P	N-Nitrosodipropylamine	0.574	0.521	9.2	94	0.00
20	T	o-Toluidine	1.397	1.827	-30.8#	112	0.00
21	T,P	Hexachloroethane	0.523	0.520	0.6	101	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	99	0.00
23	S	Nitrobenzene-d5	0.358	0.375	-4.7	102	0.00
24	T,P	Nitrobenzene	0.354	0.365	-3.1	102	0.00
25	T,P	Isophorone	0.673	0.502	25.4#	74	0.00
26	T,P	2-Nitrophenol	0.204	0.229	-12.3	102	0.00
27	T,P	2,4-Dimethylphenol	0.334	0.311	6.9	91	0.00
28	T	Benzoic acid	0.058	0.024	58.6#	57	0.00
29	T,P	bis(2-Chloroethoxy)methane	0.423	0.418	1.2	97	0.00
30	T,P	2,4-Dichlorophenol	0.326	0.352	-8.0	103	0.00
31	T	1,2,4-Trichlorobenzene	0.400	0.399	0.3	100	0.00
32	T	4-Chlorophenol	1.093	0.315	71.2#	29#	-0.03
33	T,P	Naphthalene	1.118	1.089	2.6	101	0.00
34	T,P	4-Chloroaniline	0.288	0.345	-19.8	90	0.00
35	T	2,6-Dichlorophenol	0.330	0.338	-2.4	101	0.00
36	T,P	Hexachlorobutadiene	0.221	0.214	3.2	97	0.00
37	T,P	4-Chloro-3-methylphenol	0.280	0.290	-3.6	98	0.00
38	T,P	2-Methylnaphthalene	0.773	0.738	4.5	98	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	101	0.00
40	T,P	Hexachlorocyclopentadiene	0.293	0.212	27.6#	64	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.669	0.661	1.2	104	0.00
42	T,P	2,4,6-Trichlorophenol	0.400	0.409	-2.2	99	0.00
43	T,P	2,4,5-Trichlorophenol	0.435	0.440	-1.1	97	0.00
44	S	2-Fluorobiphenyl	1.516	1.437	5.2	100	0.00
45	T,P	2-Chloronaphthalene	1.500	1.386	7.6	94	0.00
46	T,P	1-Chloronaphthalene	1.148	1.117	2.7	111	0.00
47	T,P	2-Nitroaniline	0.412	0.414	-0.5	99	0.00

(#) = Out of Range
09281111.D 092811S5.M Thu Nov 17 12:15:15 2011 Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\092811\09281111.D Vial: 85
Acq On : 28 Sep 2011 2:23 pm Operator: Michael Truchan
Sample : ICV S5 092811 Inst : SVOC 5
Misc : ICAL SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	T,P	Dimethyl phthalate	1.373	1.336	2.7	100	0.00
49	T,P	2,6-Dinitrotoluene	0.315	0.329	-4.4	101	0.00
50	T,P	Acenaphthylene	1.986	1.622	18.3	86	0.00
51	T,P	3-Nitroaniline	0.255	0.267	-4.7	96	0.00
52	T,P	Acenaphthene	1.200	1.264	-5.3	113	0.00
53	T,P	2,4-Dinitrophenol	0.064	0.090	-40.6#	103	0.00
54	T,P	4-Nitrophenol	0.135	0.186	-37.8#	104	0.00
55	T	Pentachlorobenzene	0.575	0.549	4.5	102	0.00
56	T,P	2,4-Dinitrotoluene	0.373	0.391	-4.8	98	0.00
57	T,P	Dibenzofuran	1.740	1.608	7.6	99	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.311	0.337	-8.4	97	0.00
59	T,P	Diethyl phthalate	1.282	1.242	3.1	100	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.728	0.707	2.9	101	0.00
61	T,P	Fluorene	1.389	1.455	-4.8	115	0.00
62	T,P	4-Nitroaniline	0.277	0.267	3.6	90	0.00
63	S	2,4,6-Tribromophenol	0.199	0.109	45.2#	55	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.098	0.133	-35.7#	109	0.00
66	T,P	N-Nitrosodiphenylamine	0.752	0.711	5.5	101	0.00
67	T	Azobenzene	0.736	0.652	11.4	95	0.00
68	T,P	4-Bromophenyl phenyl ether	0.274	0.262	4.4	102	0.00
69	T,P	Hexachlorobenzene	0.302	0.279	7.6	99	0.00
70	T,P	Pentachlorophenol	0.063	0.094	-49.2#	91	0.00
71	T	Pentachloronitrobenzene	0.087	0.089	-2.3	107	0.00
72	T	n-Octadecane	0.420	0.349	16.9	109	0.00
73	T,P	Phenanthrene	1.229	1.216	1.1	109	0.00
74	T,P	Anthracene	1.283	1.286	-0.2	109	0.00
75	T,P	Carbazole	1.047	0.950	9.3	91	0.00
76	T,P	Di-n-butyl phthalate	1.310	1.228	6.3	99	0.00
77	T,P	Fluoranthene	1.375	1.273	7.4	100	0.00
78	T	Benzidine	0.320	0.120	62.5#	40#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	101	0.00
80	T,P	Pyrene	1.382	1.555	-12.5	113	0.00
81	S	Terphenyl-d14	0.972	0.950	2.3	100	0.00
82	T,P	Butyl benzyl phthalate	0.553	0.581	-5.1	101	0.00
83	T,P	3,3'-Dichlorobenzidine	0.922	0.404	56.2#	45#	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	0.747	0.783	-4.8	102	0.00
85	T,P	Benz(a)anthracene	1.296	1.437	-10.9	114	0.00
86	T,P	Chrysene	1.157	1.301	-12.4	115	0.00
87	T,P	Di-n-octyl phthalate	1.238	1.346	-8.7	99	0.00
88	I	Perylene-d12	1.000	1.000	0.0	100	0.00
89	T,P	Benzo(b)fluoranthene	1.318	1.474	-11.8	111	0.00
90	T,P	Benzo(k)fluoranthene	1.199	1.345	-12.2	118	0.00
91	T,P	Benzo(a)pyrene	1.170	1.368	-16.9	115	0.00
92	T,P	Indeno(1,2,3-cd)pyrene	1.278	1.482	-16.0	114	0.00
93	T,P	Dibenz(a,h)anthracene	1.049	1.178	-12.3	112	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\092811\09281111.D Vial: 85
Acq On : 28 Sep 2011 2:23 pm Operator: Michael Truchan
Sample : ICV S5 092811 Inst : SVOC 5
Misc : ICAL SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94	T,P	Benzo(g,h,i)perylene	1.086	1.268	-16.8	114	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
09281111.D 092811S5.M Thu Nov 17 12:15:16 2011 Page 3

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108447

Lab File ID: 10031101.D DFTPP Injection Date: 10/3/2011

Instrument ID: SVOC5 DFTPP Injection Time: 8:40

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	38.0
68	<2% of mass 69	0.0
70	<2% of mass 69	1.3
127	40-60% of mass 198	49.0
197	<1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	7.5
275	10-30% of mass 198	21.0
365	>1% of mass 198	1.8
441	Present but less than mass 443	75.0
442	>40% of mass 198	41.0
443	17-23% of mass 442	20.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV2 S5 100311	CCV2 S5 100311	10031103.D	10/03/11	10:40
02	RLVS S5 100311	RLVS S5 100311	10031104.D	10/03/11	11:03
03	CCB	CCB	10031105.D	10/03/11	11:27
04	IOA-SS-EU46-0002	1108447-002A	10031108.D	10/03/11	12:14
05	IOA-SS-EU35-0002	1108447-005A	10031109.D	10/03/11	12:37
06	IOA-SS-EU35-0002MS	1108447-005A	10031110.D	10/03/11	13:01
07	OA-SS-EU35-0002MSD	1108447-005A	10031111.D	10/03/11	13:24
08	IOA-SS-EU49-0002	1108447-008A	10031112.D	10/03/11	13:48
09	IOA-SS-EU42-0002	1108447-012A	10031113.D	10/03/11	14:12
10	IOA-SS-EU34-0002	1108447-013A	10031114.D	10/03/11	14:35
11	OA-SS-DUP03-081011	1108447-004A	10031116.D	10/03/11	14:59
12	IOA-SS-EU43-0002	1108447-011A	10031117.D	10/03/11	15:23
13	ZZZZZ	1108257-004A	10031118.D	10/03/11	15:46
14	ZZZZZ	1108257-006A	10031119.D	10/03/11	16:10
15	RLVS S5 100311	RLVS S5 100311	10031126.D	10/03/11	18:56

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100311\10031103.D Vial: 77
Acq On : 3 Oct 2011 10:40 am Operator: Michael Truchan
Sample : CCV2 S5 100311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	94	0.00
2	T	N-Nitrosodimethylamine	0.674	0.695	-3.1	92	0.00
3	T	Pyridine	1.314	1.302	0.9	92	0.00
4	S	2-Fluorophenol	1.192	1.197	-0.4	93	0.00
5	T	N-Nitrosodiethylamine	0.474	0.511	-7.8	96	0.00
6	S	Phenol-d5	1.460	1.478	-1.2	94	0.00
7	T,P	Phenol	1.527	1.565	-2.5	94	0.00
8	T	Aniline	1.397	1.776	-27.1#	95	0.00
9	T,P	bis(2-Chloroethyl) ether	1.281	1.188	7.3	93	0.00
10	T	n-Decane	1.292	1.215	6.0	90	0.00
11	T,P	2-Chlorophenol	1.307	1.346	-3.0	94	0.00
12	T	1,3-Dichlorobenzene	1.521	1.520	0.1	93	0.00
13	T	1,4-Dichlorobenzene	1.510	1.480	2.0	93	0.00
14	T	Benzyl alcohol	0.760	0.853	-12.2	97	0.00
15	T	1,2-Dichlorobenzene	1.441	1.430	0.8	93	0.00
16	T,P	2-Methylphenol	0.961	0.977	-1.7	95	0.00
17	T	bis(2-Chloroisopropyl) ethe	1.539	1.497	2.7	94	0.00
18	T,P	4-Methylphenol	1.177	1.143	2.9	93	0.00
19	T,P	N-Nitrosodipropylamine	0.574	0.596	-3.8	98	0.00
20	T	o-Toluidine	1.397	1.653	-18.3	93	0.00
21	T,P	Hexachloroethane	0.523	0.522	0.2	93	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	96	0.00
23	S	Nitrobenzene-d5	0.358	0.345	3.6	90	0.00
24	T,P	Nitrobenzene	0.354	0.337	4.8	91	0.00
25	T,P	Isophorone	0.673	0.670	0.4	95	0.00
26	T,P	2-Nitrophenol	0.204	0.201	1.5	87	0.00
27	T,P	2,4-Dimethylphenol	0.334	0.334	0.0	94	0.00
28	T	Benzoic acid	0.058	0.041	29.3#	94	0.03
29	T,P	bis(2-Chloroethoxy)methane	0.423	0.419	0.9	94	0.00
30	T,P	2,4-Dichlorophenol	0.326	0.329	-0.9	93	0.00
31	T	1,2,4-Trichlorobenzene	0.400	0.386	3.5	93	0.00
32	T	4-Chlorophenol	1.093	0.000	100.0#	0#	-6.80#
33	T,P	Naphthalene	1.118	1.051	6.0	94	0.00
34	T,P	4-Chloroaniline	0.288	0.364	-26.4#	92	0.00
35	T	2,6-Dichlorophenol	0.330	0.328	0.6	95	0.00
36	T,P	Hexachlorobutadiene	0.221	0.212	4.1	93	0.00
37	T,P	4-Chloro-3-methylphenol	0.280	0.290	-3.6	95	0.00
38	T,P	2-Methylnaphthalene	0.773	0.744	3.8	95	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	97	0.00
40	T,P	Hexachlorocyclopentadiene	0.293	0.256	12.6	74	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.669	0.637	4.8	95	0.00
42	T,P	2,4,6-Trichlorophenol	0.400	0.404	-1.0	93	0.00
43	T,P	2,4,5-Trichlorophenol	0.435	0.443	-1.8	93	0.00
44	S	2-Fluorobiphenyl	1.516	1.416	6.6	94	0.00
45	T,P	2-Chloronaphthalene	1.500	1.438	4.1	93	0.00
46	T,P	1-Chloronaphthalene	1.148	1.069	6.9	101	0.00
47	T,P	2-Nitroaniline	0.412	0.393	4.6	89	0.00

(#) = Out of Range
10031103.D 092811S5.M Tue Nov 15 16:28:29 2011 Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100311\10031103.D Vial: 77
Acq On : 3 Oct 2011 10:40 am Operator: Michael Truchan
Sample : CCV2 S5 100311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	T,P	Dimethyl phthalate	1.373	1.379	-0.4	98	0.00
49	T,P	2,6-Dinitrotoluene	0.315	0.311	1.3	91	0.00
50	T,P	Acenaphthylene	1.986	1.911	3.8	96	0.00
51	T,P	3-Nitroaniline	0.255	0.285	-11.8	97	0.00
52	T,P	Acenaphthene	1.200	1.132	5.7	96	0.00
53	T,P	2,4-Dinitrophenol	0.064	0.076	-18.7	82	0.00
54	T,P	4-Nitrophenol	0.135	0.184	-36.3#	98	0.01
55	T	Pentachlorobenzene	0.575	0.547	4.9	96	0.00
56	T,P	2,4-Dinitrotoluene	0.373	0.372	0.3	89	0.00
57	T,P	Dibenzofuran	1.740	1.657	4.8	97	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.311	0.347	-11.6	96	0.00
59	T,P	Diethyl phthalate	1.282	1.264	1.4	97	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.728	0.704	3.3	96	0.00
61	T,P	Fluorene	1.389	1.285	7.5	96	0.00
62	T,P	4-Nitroaniline	0.277	0.296	-6.9	95	0.00
63	S	2,4,6-Tribromophenol	0.199	0.196	1.5	94	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	99	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.098	0.102	-4.1	80	0.00
66	T,P	N-Nitrosodiphenylamine	0.752	0.706	6.1	96	0.00
67	T	Azobenzene	0.736	0.691	6.1	96	0.00
68	T,P	4-Bromophenyl phenyl ether	0.274	0.258	5.8	95	0.00
69	T,P	Hexachlorobenzene	0.302	0.278	7.9	94	0.00
70	T,P	Pentachlorophenol	0.063	0.114	-81.0#	106	0.00
71	T	Pentachloronitrobenzene	0.087	0.083	4.6	95	0.00
72	T	n-Octadecane	0.420	0.332	21.0#	99	0.00
73	T,P	Phenanthrene	1.229	1.136	7.6	97	0.00
74	T,P	Anthracene	1.283	1.196	6.8	97	0.00
75	T,P	Carbazole	1.047	1.089	-4.0	100	0.00
76	T,P	Di-n-butyl phthalate	1.310	1.281	2.2	99	0.00
77	T,P	Fluoranthene	1.375	1.309	4.8	98	0.00
78	T	Benzidine	0.320	0.382	-19.4	120	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	97	0.01
80	T,P	Pyrene	1.382	1.379	0.2	97	0.00
81	S	Terphenyl-d14	0.972	0.948	2.5	96	0.00
82	T,P	Butyl benzyl phthalate	0.553	0.594	-7.4	99	0.00
83	T,P	3,3'-Dichlorobenzidine	0.922	0.847	8.1	91	0.01
84	T,P	bis(2-Ethylhexyl) phthalate	0.747	0.816	-9.2	103	0.00
85	T,P	Benz(a)anthracene	1.296	1.258	2.9	96	0.01
86	T,P	Chrysene	1.157	1.118	3.4	96	0.01
87	T,P	Di-n-octyl phthalate	1.238	1.410	-13.9	100	0.00
88	I	Perylene-d12	1.000	1.000	0.0	95	0.02
89	T,P	Benzo(b)fluoranthene	1.318	1.395	-5.8	100	0.02
90	T,P	Benzo(k)fluoranthene	1.199	1.060	11.6	89	0.02
91	T,P	Benzo(a)pyrene	1.170	1.191	-1.8	95	0.02
92	T,P	Indeno(1,2,3-cd)pyrene	1.278	1.296	-1.4	95	0.03
93	T,P	Dibenz(a,h)anthracene	1.049	1.052	-0.3	95	0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100311\10031103.D Vial: 77
Acq On : 3 Oct 2011 10:40 am Operator: Michael Truchan
Sample : CCV2 S5 100311 Inst : SVOC 5
Misc : CCV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94 T,P	Benzo(g,h,i)perylene	1.086	1.110	-2.2	95	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
10031103.D 092811S5.M Tue Nov 15 16:28:31 2011 Page 3

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108447

Lab File ID: 10041101.D DFTPP Injection Date: 10/4/2011

Instrument ID: SVOC5 DFTPP Injection Time: 11:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	32.0
68	<2% of mass 69	0.0
70	<2% of mass 69	0.3
127	40-60% of mass 198	45.0
197	<1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	7.1
275	10-30% of mass 198	23.0
365	>1% of mass 198	2.1
441	Present but less than mass 443	74.0
442	>40% of mass 198	51.0
443	17-23% of mass 442	20.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV1 S5 100411	CCV1 S5 100411	10041102.D	10/04/11	11:39
02	RLVS S5 100411	RLVS S5 100411	10041103.D	10/04/11	12:24
03	MB-23629	MB-23629	10041104.D	10/04/11	12:48
04	LCS-23629	LCS-23629	10041105.D	10/04/11	13:11
05	ZZZZZ	1108447-011A	10041107.D	10/04/11	13:58
06	ZZZZZ	1109174-003B	10041109.D	10/04/11	14:46
07	ZZZZZ	1109254-002B	10041110.D	10/04/11	15:10
08	ZZZZZ	1108425-001A	10041112.D	10/04/11	15:57
09	ZZZZZ	1109264-005B	10041113.D	10/04/11	16:20
10	ZZZZZ	1109264-006B	10041114.D	10/04/11	16:44
11	ZZZZZ	1109264-009B	10041115.D	10/04/11	17:08
12	ZZZZZ	1109411-001A	10041116.D	10/04/11	17:31
13	ZZZZZ	1109406-002A	10041117.D	10/04/11	17:55
14	ZZZZZ	1109406-001A	10041118.D	10/04/11	18:19
15	IOA-SS-EU47-0002	1108447-001A	10041119.D	10/04/11	18:42
16	IOA-SS-EU44-0002	1108447-010A	10041120.D	10/04/11	19:06
17	IOA-SS-EU45-0002	1108447-007A	10041121.D	10/04/11	19:30
18	IOA-SS-EU36-0002	1108447-003A	10041122.D	10/04/11	19:53
19	IOA-SS-EU48-0002	1108447-009A	10041124.D	10/04/11	20:41
20	IOA-SS-EU23-0002	1108447-006A	10041125.D	10/04/11	21:04

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00
2	T	N-Nitrosodimethylamine	0.674	0.723	-7.3	102	0.00
3	T	Pyridine	1.314	1.323	-0.7	100	0.00
4	S	2-Fluorophenol	1.192	1.206	-1.2	100	0.00
5	T	N-Nitrosodiethylamine	0.474	0.523	-10.3	105	0.00
6	S	Phenol-d5	1.460	1.493	-2.3	101	0.00
7	T,P	Phenol	1.527	1.568	-2.7	101	0.00
8	T	Aniline	1.397	1.857	-32.9#	106	0.00
9	T,P	bis(2-Chloroethyl) ether	1.281	1.185	7.5	99	0.00
10	T	n-Decane	1.292	1.209	6.4	96	0.00
11	T,P	2-Chlorophenol	1.307	1.358	-3.9	101	0.00
12	T	1,3-Dichlorobenzene	1.521	1.531	-0.7	101	0.00
13	T	1,4-Dichlorobenzene	1.510	1.493	1.1	101	0.00
14	T	Benzyl alcohol	0.760	0.854	-12.4	104	0.00
15	T	1,2-Dichlorobenzene	1.441	1.436	0.3	100	0.00
16	T,P	2-Methylphenol	0.961	0.975	-1.5	102	0.00
17	T	bis(2-Chloroisopropyl) ethe	1.539	1.479	3.9	99	0.00
18	T,P	4-Methylphenol	1.177	1.152	2.1	101	0.00
19	T,P	N-Nitrosodipropylamine	0.574	0.594	-3.5	105	0.00
20	T	o-Toluidine	1.397	1.755	-25.6#	106	0.00
21	T,P	Hexachloroethane	0.523	0.526	-0.6	100	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	102	0.00
23	S	Nitrobenzene-d5	0.358	0.362	-1.1	101	0.00
24	T,P	Nitrobenzene	0.354	0.354	0.0	102	0.00
25	T,P	Isophorone	0.673	0.677	-0.6	102	0.00
26	T,P	2-Nitrophenol	0.204	0.220	-7.8	100	0.00
27	T,P	2,4-Dimethylphenol	0.334	0.339	-1.5	102	0.00
28	T	Benzoic acid	0.058	0.034	41.4#	84	0.03
29	T,P	bis(2-Chloroethoxy)methane	0.423	0.421	0.5	101	0.00
30	T,P	2,4-Dichlorophenol	0.326	0.337	-3.4	101	0.00
31	T	1,2,4-Trichlorobenzene	0.400	0.394	1.5	101	0.00
32	T	4-Chlorophenol	1.093	0.000	100.0#	0#	-6.80#
33	T,P	Naphthalene	1.118	1.046	6.4	100	0.00
34	T,P	4-Chloroaniline	0.288	0.419	-45.5#	113	0.00
35	T	2,6-Dichlorophenol	0.330	0.329	0.3	101	0.00
36	T,P	Hexachlorobutadiene	0.221	0.213	3.6	99	0.00
37	T,P	4-Chloro-3-methylphenol	0.280	0.295	-5.4	103	0.00
38	T,P	2-Methylnaphthalene	0.773	0.748	3.2	102	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00
40	T,P	Hexachlorocyclopentadiene	0.293	0.265	9.6	81	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.669	0.641	4.2	102	0.00
42	T,P	2,4,6-Trichlorophenol	0.400	0.417	-4.2	102	0.00
43	T,P	2,4,5-Trichlorophenol	0.435	0.462	-6.2	103	0.00
44	S	2-Fluorobiphenyl	1.516	1.438	5.1	101	0.00
45	T,P	2-Chloronaphthalene	1.500	1.406	6.3	96	0.00
46	T,P	1-Chloronaphthalene	1.148	1.118	2.6	112	0.00
47	T,P	2-Nitroaniline	0.412	0.429	-4.1	104	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	T,P	Dimethyl phthalate	1.373	1.396	-1.7	106	0.00
49	T,P	2,6-Dinitrotoluene	0.315	0.335	-6.3	104	0.00
50	T,P	Acenaphthylene	1.986	1.922	3.2	102	0.00
51	T,P	3-Nitroaniline	0.255	0.333	-30.6#	121	0.00
52	T,P	Acenaphthene	1.200	1.137	5.2	103	0.00
53	T,P	2,4-Dinitrophenol	0.064	0.108	-68.8#	125	0.00
54	T,P	4-Nitrophenol	0.135	0.193	-43.0#	109	0.01
55	T	Pentachlorobenzene	0.575	0.552	4.0	103	0.00
56	T,P	2,4-Dinitrotoluene	0.373	0.410	-9.9	104	0.00
57	T,P	Dibenzofuran	1.740	1.672	3.9	104	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.311	0.365	-17.4	107	0.00
59	T,P	Diethyl phthalate	1.282	1.284	-0.2	104	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.728	0.713	2.1	103	0.00
61	T,P	Fluorene	1.389	1.285	7.5	102	0.00
62	T,P	4-Nitroaniline	0.277	0.330	-19.1	112	0.00
63	S	2,4,6-Tribromophenol	0.199	0.203	-2.0	104	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	104	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.098	0.130	-32.7#	108	0.00
66	T,P	N-Nitrosodiphenylamine	0.752	0.709	5.7	102	0.00
67	T	Azobenzene	0.736	0.695	5.6	102	0.00
68	T,P	4-Bromophenyl phenyl ether	0.274	0.264	3.6	104	0.00
69	T,P	Hexachlorobenzene	0.302	0.286	5.3	103	0.00
70	T,P	Pentachlorophenol	0.063	0.124	-96.8#	122	0.00
71	T	Pentachloronitrobenzene	0.087	0.086	1.1	105	0.00
72	T	n-Octadecane	0.420	0.328	21.9#	104	0.00
73	T,P	Phenanthrene	1.229	1.130	8.1	103	0.00
74	T,P	Anthracene	1.283	1.213	5.5	104	0.00
75	T,P	Carbazole	1.047	1.113	-6.3	108	0.00
76	T,P	Di-n-butyl phthalate	1.310	1.309	0.1	107	0.00
77	T,P	Fluoranthene	1.375	1.337	2.8	106	0.00
78	T	Benzidine	0.320	0.519	-62.2#	173#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	105	0.01
80	T,P	Pyrene	1.382	1.377	0.4	104	0.00
81	S	Terphenyl-d14	0.972	0.953	2.0	105	0.00
82	T,P	Butyl benzyl phthalate	0.553	0.595	-7.6	108	0.00
83	T,P	3,3'-Dichlorobenzidine	0.922	0.871	5.5	101	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	0.747	0.831	-11.2	113	0.00
85	T,P	Benz(a)anthracene	1.296	1.275	1.6	106	0.01
86	T,P	Chrysene	1.157	1.121	3.1	104	0.01
87	T,P	Di-n-octyl phthalate	1.238	1.465	-18.3	112	0.00
88	I	Perylene-d12	1.000	1.000	0.0	103	0.02
89	T,P	Benzo(b)fluoranthene	1.318	1.405	-6.6	109	0.02
90	T,P	Benzo(k)fluoranthene	1.199	1.068	10.9	96	0.02
91	T,P	Benzo(a)pyrene	1.170	1.216	-3.9	105	0.02
92	T,P	Indeno(1,2,3-cd)pyrene	1.278	1.267	0.9	100	0.03
93	T,P	Dibenz(a,h)anthracene	1.049	1.035	1.3	101	0.02

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100411\10041102.D Vial: 77
Acq On : 4 Oct 2011 11:39 am Operator: Michael Truchan
Sample : CCV1 S5 100411 Inst : SVOC 5
Misc : ICV SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94 T,P	Benzo(g,h,i)perylene	1.086	1.072	1.3	98	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
10041102.D 092811S5.M Tue Nov 15 08:30:55 2011 Page 3

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108447

Lab File ID: 10041101.D DFTPP Injection Date: 10/4/2011

Instrument ID: SVOC5 DFTPP Injection Time: 11:16

21	ZZZZZ	1109309-001B	10041126.D	10/04/11	21:28
22	RLVS S5 100411	RLVS S5 100411	10041127.D	10/04/11	21:51

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\2\DATA\100311\10031101.D
Tune Time : 3 Oct 2011 8:40 am

Daily Calibration File : C:\HPCHEM\2\DATA\092811\09281110.D

					580732	1909440	1084640
					1785200	1585250	1706940
File	Sample	Surrogate Recovery %			Internal Standard Responses		
10031102.D	CCV1 S5	113*	108*	103* 99*	543273	1772829	1041244
		112*	102*		1717658	1644177	1644877
10031103.D	CCV2 S5	201*	203*	96* 93*	545151	1791615	1037692
		197*	98*		1702834	1633494	1650076
10031104.D	RLVS S5	103*	97*	99* 94*	542667	1780901	1046742
		108*	89*		1684115	1803439	1742563
10031105.D	CCB	0	0	0 0*	379829	1295376	739713
		0	0		1239444	1293684	1207257
10031107.D	1108201-	5*	5*	6* 8*	542349	1750970	991596
		7*	10*		1563284	1565633	1385339
10031108.D	1108447- EU46-0002	78*	81*	79* 80*	581462	1890418	1089705
		96*	89*		1698653	1714194	1476953
10031109.D	1108447- EU35-0002	78*	80*	81* 82*	561278	1797723	1033332
		96*	89*		1637957	1708509	1510638
10031110.D	1108447- EU35-0002MS	82*	86*	85* 84*	550787	1780309	1028337
		102*	92*		1678146	1630130	1496765
10031111.D	1108447- EU35-0002MSD	76*	80*	80* 80*	581360	1871682	1075357
		98*	89*		1750972	1704907	1567359
10031112.D	1108447- EU49-0002	89*	89*	90* 88*	558306	1826888	1047302
		102*	92*		1629740	1663020	1445589
10031113.D	1108447- EU42-0002	88*	89*	91* 89*	568213	1851029	1076921
		106*	96*		1669011	1682165	1420830
10031114.D	1108447- EU34-0002	89*	91*	92* 91*	562932	1826576	1061830
		99*	96*		1670780	1704052	1476593
10031116.D	1108447- Dup03	84*	87*	84* 88*	559514	1843507	1031886
		110*	99*		1628398	1615830	1341391
10031117.D	1108447- EU43-0002	100*	100*	104* 100*	554998	1752898	1007801
		128*	109*		1575854	1503575	1191686
10031118.D	1108257- ~~EU33-0002~~	10*	10*	13* 15*	529067	1704584	968954
		15*	20*		1432400	1025809	~~694478*~~
10031119.D	1108257- ~~EU42-0002~~	5*	5*	8* 10*	560978	1789415	967382
		8*	15*		1534079	910402	649306*
10031120.D	1108447- ~~EU34-0002~~	13*	11*	13* 16*	528385	1750906	1015297
		17*	22*		1604920	1360177	845384*
10031121.D	1108447- ~~EU45-0002~~	74*	73*	75* 80*	533660	1725817	984963
		93*	100*		1558362	1239445	786563*
10031122.D	1108447- ~~EU36-0002~~	8*	8*	11* 12*	520122	1686547	937714
		12*	17*		1479387	1186545	658118*

10031123.D 1108447-	15*	15*	16*	19*	532348	1716525	973764
	19*	25*			1495388	1123633	651331*
10031124.D 1108447-	15*	13*	15*	18*	543165	1770170	996463
E1448-0002	17*	24*			1545576	1248078	729172*
10031125.D 1108447-	15*	14*	16*	19*	521929	1700499	961702
E1423-0002	18*	24*			1491833	1244422	724899*
10031126.D RLVS S5	100*	93*	95*	94*	545221	1732991	1003458
	95*	111*			1551059	1261477	727194*

t - fails 12hr time check * - fails criteria

Created: Tue Nov 15 16:44:55 2011 SVOC 5

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\100311\10031101.D
Tune Time : 3 Oct 2011 11:11 am

Daily Calibration File : C:\HPCHEM\1\DATA\093011\09301108.D

					148385	418092	205902
					295279	253831	239508
File	Sample	Surrogate Recovery %			Internal Standard Responses		
10031102.D	CCV1 S6	180*	184*	92* 87*	182518	513039	243355
		185*	95*		339820	270697	249485
10031103.D	RLVS1 S6	95*	97*	93* 88*	181495	500501	248638
		103*	97*		353229	289918	257698
10031104.D	MB-23718	76*	69*	86* 85*	183918	543467	264792
		101*	105*		366340	281290	238647
10031105.D	LCS-2371	79*	78*	89* 75*	185725	539019	268347
		100*	101*		369692	297537	263822
10031106.D	1109645-	32*	34*	84* 79*	185590	546681	272927
		61*	93*		383266	310902	267267
10031107.D	1109645-	7*	6*	74* 66*	194165	548779	277072
		41*	95*		381537	295609	251550
10031108.D	1109645-	3*	4*	82* 77*	187759	538617	268007
		25*	99*		376752	293789	254986
10031109.D	1109645-	50*	58*	84* 80*	179377	512177	255812
		54*	101*		349308	278691	243121
10031110.D	1109645-	60*	68*	85* 79*	176452	505491	251856
		67*	95*		371875	307409	269761
10031111.D	1109645-	1*	2*	78* 65*	178332	517738	262234
		3*	92*		370284	314232	267219
10031112.D	1109645-	1*	2*	77* 64*	177363	511009	257699
		2*	95*		377337	315260	270105
10031113.D	1109537-	0*	1*	85* 74*	168775	492601	260066
		3*	106*		363767	298752	258483
10031114.D	1108623-	0*	1*	1* 2*	176549	476306	238881
		0	2*		351569	276403	244028
10031115.D	1108B66-	72*	78*	78* 71*	199532	558793	268494
		77*	78*		382960	317890	278713
10031116.D	1108B66-	71*	75*	75* 70*	174213	488262	227731
		71*	78*		348152	285782	248041
10031117.D	1108B66-	73*	80*	82* 76*	192132	519248	256891
		82*	88*		376617	302857	255570
10031118.D	1108447-	83*	89*	87* 84*	175357	493001	246877
6933-0002		98*	100*		350798	286938	239038
10031119.D	1109174-	8*	11*	11* 13*	169432	457635	231077
		19*	20*		345940	260607	248558
10031120.D	1108201-	7*	7*	8* 10*	176388	482121	225378
		8*	12*		320945	254554	225698
10031121.D	1109174-	68*	71*	72* 67*	176493	477714	239693
		87*	95*		336339	266865	217014
10031122.D	1109174-	8*	9*	11* 11*	155374	411998	201419
		0	13*		290766	227735	137117
10031123.D	1108974-	1*	3*	3* 3*	165058	445533	209031

	0	5*			311066	244520	163095
10031124.D 1108974-	8*	14*	12*	13*	165788	473434	228862
	14*	19*			329998	239727	146942
10031125.D 1108974-	3*	3*	3*	3*	154373	437657	211163
	0	5*			302249	227240	128686
10031126.D 1108974-	2*	2*	3*	3*	167566	460876	219636
	0	4*			319858	238050	126045
10031127.DtRLVS1 S6	57*	91*	90*	87*	155282	436723	207819
	91*	100*			303180	230858	130960

t - fails 12hr time check * - fails criteria

Created: Tue Nov 15 11:54:35 2011 SVOC 6

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\2\DATA\100411\10041101.D
Tune Time : 4 Oct 2011 11:16 am

Daily Calibration File : C:\HPCHEM\2\DATA\092811\09281110.D

					580732	1909440	1084640
					1785200	1585250	1706940
File	Sample	Surrogate Recovery %			Internal Standard Responses		
10041102.D	CCV1 S5	202*	205*	101* 95*	583943	1902393	1100728
		205*	98*		1806294	1765541	1775047
10041103.D	RLVS S5	105*	99*	102* 97*	557213	1805453	1044249
		114*	93*		1694956	1820205	1762451
10041104.D	MB-23629	74*	79*	83* 84*	607653	1970267	1141734
		86*	87*		1812103	1990733	1862068
10041105.D	LCS-2362	87*	91*	92* 88*	586747	1898986	1109503
		102*	94*		1796195	1782939	1753514
10041106.D	1108623-	1*	1*	1* 2*	605909	1933017	1098237
		1*	2*		1760200	1839896	1677243
10041107.D	1108447-	10*	10*	10* 11*	587705	1883848	1100606
		11*	13*		1752018	1843490	1661779
10041108.D	1108447-	0	0	0 0	0*	0*	0*
		0	20682*		0*	1021*	3312*
10041109.D	1109174-	38*	38*	39* 41*	580454	1866119	1026429
		51*	53*		1671419	1596539	1461229
10041110.D	1109254-	8*	5*	7* 9*	578623	1879439	1087496
		19*	21*		1719969	1758696	1633555
10041111.D	1109365-	31*	31*	38* 33*	521448	1703249	1061801
		59*	48*		1561306	1671493	1496975
10041112.D	1108425-	80*	80*	83* 85*	558105	1814480	1012331
		93*	92*		1539621	1497730	1295835
10041113.D	1109264-	8*	5*	17* 16*	537858	1738818	1019844
		16*	19*		1593869	1677855	1473670
10041114.D	1109264-	0	2*	8* 8*	535780	1758138	1010303
		6*	9*		1621106	1623447	1403806
10041115.D	1109264-	0	4*	18* 18*	529053	1745654	989953
		17*	20*		1558274	1677363	1470674
10041116.D	1109411-	59*	61*	63* 65*	550871	1791107	1004158
		68*	77*		1529133	1606913	1392807
10041117.D	1109406-	71*	72*	76* 82*	563927	1787447	941772
		74*	81*		1354937	1549052	1292826
10041118.D	1109406-	74*	75*	77* 80*	545867	1766732	990284
		81*	87*		1527893	1535304	1287880
10041119.D	1108447-	73*	73*	74* 77*	530528	1699255	981835
EU47-0002		83*	90*		1516085	1371460	938952
10041120.D	1108447-	97*	96*	97* 98*	488810	1606589	924675
EU44-0002		108*	114*		1410425	1216441	768814*

10041121.D 1108447-	16*	15*	17*	18*	50467	O	1630067	944242
EU45-0002	20*	23*			145867	O	1226106	794860*
10041122.D 1108447-	71*	68*	72*	76*	52133	O	1675341	948503
EU36-0002	85*	92*			147211	2	1225510	821306*
10041123.D 1108257-	2*	1*	4*	5*	53971	3	1743926	978178
	4*	6*			156172	4	1189470	877066
10041124.D 1108447-	85*	82*	86*	89*	49557	7	1608083	927367
EU48-0062	97*	112*			140020	8	1086298	602278*
10041125.D 1108447-	48*	50*	56*	60*	50625	3	1598803	881791
EU23-0002	65*	84*			140891	2	948802	458111*
10041126.D 1109309-	52*	39*	34*	38*	50232	O	1591004	916182
	129*	58*			142907	7	1178970	701863*
10041127.D RLVS S5	103*	95*	98*	95*	52554	2	1734776	1025962
	108*	111*			161419	6	1365694	868932

t - fails 12hr time check * - fails criteria

Created: Tue Nov 15 08:43:34 2011 SVOC 5

IS Associations

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\100311\10031126.D Vial: 78
Acq On : 3 Oct 2011 6:56 pm Operator: Michael Truchan
Sample : RLVS S5 100311 Inst : SVOC 5
Misc : RLVS SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 4 7:41 2011 Quant Results File: 092811S5.RES

Quant Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Initial Calibration
DataAcq Meth : 092811S5

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	5.34	152	545221	40.00	µg/mL	0.00
22) Naphthalene-d8	6.78	136	1732991	40.00	µg/mL	0.00
39) Acenaphthene-d10	8.42	164	1003458	40.00	µg/mL	0.00
64) Phenanthrene-d10	9.70	188	1551059	40.00	µg/mL	0.00
79) Chrysene-d12	12.11	240	1261477	40.00	µg/mL	0.00
88) Perylene-d12	13.74	264	727194	40.00	µg/mL	0.00
System Monitoring Compounds						
4) 2-Fluorophenol	3.73	112	406978	25.05	µg/mL	0.00
Spiked Amount 25.000			Recovery = 100.20%			
6) Phenol-d5	4.88	99	460841	23.16	µg/mL	0.00
Spiked Amount 25.000			Recovery = 92.64%			
23) Nitrobenzene-d5	6.00	82	367156	23.69	µg/mL	0.00
Spiked Amount 25.000			Recovery = 94.76%			
44) 2-Fluorobiphenyl	7.81	172	890638	23.42	µg/mL	0.00
Spiked Amount 25.000			Recovery = 93.68%			
63) 2,4,6-Tribromophenol	9.11	330	118427	23.77	µg/mL	0.00
Spiked Amount 25.000			Recovery = 95.08%			
81) Terphenyl-d14	11.04	244	847093	27.64	µg/mL	0.00
Spiked Amount 25.000			Recovery = 110.56%			
Target Compounds						Qvalue
2) N-Nitrosodimethylamine	2.35	74	7573	0.82	µg/mL#	96
3) Pyridine	2.39	79	64999	3.63	µg/mL	99
5) N-Nitrosodiethylamine	3.97	102	5613	0.87	µg/mL#	96
7) Phenol	4.90	94	18956	0.91	µg/mL#	14
8) Aniline	4.94	93	4393	0.23	µg/mL#	1
9) bis(2-Chloroethyl) ether	4.98	93	18284	1.05	µg/mL	91
10) n-Decane	5.13	57	96962	5.51	ug/mL	98
11) 2-Chlorophenol	5.09	128	17201	0.97	µg/mL	94
12) 1,3-Dichlorobenzene	5.27	146	20377	0.98	µg/mL	98
13) 1,4-Dichlorobenzene	5.36	146	20744	1.01	µg/mL	93
15) 1,2-Dichlorobenzene	5.56	146	19393	0.99	µg/mL	98
16) 2-Methylphenol	5.70	107	14995	1.14	µg/mL#	94
17) bis(2-Chloroisopropyl) eth	5.68	45	22287	1.06	µg/mL#	75
18) 4-Methylphenol	5.89	108	30316	1.89	µg/mL#	74
19) N-Nitrosodipropylamine	5.83	70	7462	0.95	µg/mL#	85
20) o-Toluidine	5.88	106	11865	0.62	µg/mL#	1
21) Hexachloroethane	5.95	117	3482	0.49	µg/mL	96
24) Nitrobenzene	6.02	77	16617	1.08	µg/mL	91
25) Isophorone	6.28	82	22293	0.76	µg/mL	99
26) 2-Nitrophenol	6.38	139	2208	0.25	µg/mL#	74
27) 2,4-Dimethylphenol	6.45	122	12679	0.88	µg/mL	97
28) Benzoic acid	6.56	122	89851	35.51	µg/mL	95
29) bis(2-Chloroethoxy)methane	6.52	93	18554	1.01	µg/mL#	95
30) 2,4-Dichlorophenol	6.67	162	12457	0.88	µg/mL	96
31) 1,2,4-Trichlorobenzene	6.72	180	17086	0.98	µg/mL	98
32) 4-Chlorophenol	6.78	128	30848m	0.65	µg/mL	
33) Naphthalene	6.80	128	78743m	1.62	µg/mL	
34) 4-Chloroaniline	6.87	127	4426	0.36	µg/mL#	65

(#) = qualifier out of range (m) = manual integration
10031126.D 092811S5.M Tue Nov 15 16:44:07 2011 Page 1

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\100311\10031126.D
Acq On : 3 Oct 2011 6:56 pm
Sample : RLVS S5 100311
Misc : RLVS SW_8270A
MS Integration Params: RTEINT.P
Quant Time: Oct 4 7:41 2011

Vial: 78
Operator: Michael Truchan
Inst : SVOC 5
Multiplr: 1.00

Quant Results File: 092811S5.RES

Quant Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Initial Calibration
DataAcq Meth : 092811S5

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35)	2,6-Dichlorophenol	6.87	162	13081	0.92	µg/mL	99
36)	Hexachlorobutadiene	6.92	225	9504	0.99	µg/mL	97
37)	4-Chloro-3-methylphenol	7.37	107	10776	0.89	µg/mL#	91
38)	2-Methylnaphthalene	7.47	142	33738	1.01	µg/mL#	97
41)	1,2,4,5-Tetrachlorobenzene	7.63	216	16369	0.98	µg/mL	97
42)	2,4,6-Trichlorophenol	7.75	196	7987	0.80	µg/mL	96
43)	2,4,5-Trichlorophenol	7.82	196	8756	0.80	µg/mL#	87
45)	2-Chloronaphthalene	7.92	162	34884	0.93	µg/mL	96
46)	1-Chloronaphthalene	7.94	162	31756	1.10	µg/mL	94
47)	2-Nitroaniline	8.03	138	3816	0.37	µg/mL#	90
48)	Dimethyl phthalate	8.15	163	34549	1.00	µg/mL	98
49)	2,6-Dinitrotoluene	8.22	165	2516	0.32	µg/mL#	90
50)	Acenaphthylene	8.29	152	41190	0.83	µg/mL	98
51)	3-Nitroaniline	8.39	65	3740	0.59	µg/mL#	87
52)	Acenaphthene	8.45	153	35859	1.19	µg/mL	98
54)	4-Nitrophenol	8.57	65	52671	12.41	µg/mL#	82
55)	Pentachlorobenzene	8.57	250	13840	0.96	µg/mL#	94
56)	2,4-Dinitrotoluene	8.58	165	3070	0.33	µg/mL#	1
57)	Dibenzofuran	8.60	168	42199	0.97	µg/mL#	65
58)	2,3,4,6-Tetrachlorophenol	8.71	232	36429	4.67	µg/mL	95
59)	Diethyl phthalate	8.76	149	33866	1.05	µg/mL	99
60)	4-Chlorophenyl phenyl ethe	8.88	204	17937	0.98	µg/mL	95
61)	Fluorene	8.89	166	42051	1.21	µg/mL	98
62)	4-Nitroaniline	8.91	138	4468	0.64	µg/mL#	72
66)	N-Nitrosodiphenylamine	8.98	169	29875	1.02	µg/mL	99
67)	Azobenzene	9.02	77	28317	0.99	µg/mL	97
68)	4-Bromophenyl phenyl ether	9.30	248	55249	5.20	µg/mL	94
69)	Hexachlorobenzene	9.38	284	11920	1.02	µg/mL#	89
70)	Pentachlorophenol	9.56	266	10586	6.68	µg/mL#	90
71)	Pentachloronitrobenzene	9.55	237	1463	0.44	µg/mL#	76
72)	n-Octadecane	9.55	57	100594	6.17	ug/mL#	85
73)	Phenanthrene	9.72	178	56910	1.19	µg/mL#	96
74)	Anthracene	9.77	178	58467	1.18	µg/mL	97
75)	Carbazole	9.90	167	41507	1.02	µg/mL#	94
76)	Di-n-butyl phthalate	10.14	149	54802	1.08	µg/mL#	98
77)	Fluoranthene	10.73	202	50768	0.95	µg/mL	97
78)	Benzidine	10.83	184	234667	21.04	µg/mL	99
80)	Pyrene	10.93	202	59876	1.37	µg/mL	97
82)	Butyl benzyl phthalate	11.46	149	21295	1.22	µg/mL#	97
83)	3,3'-Dichlorobenzidine	12.05	252	286102	9.84	µg/mL	99
84)	bis(2-Ethylhexyl) phthalat	12.03	149	30781	1.31	µg/mL#	96
85)	Benz(a)anthracene	12.10	228	48841	1.20	µg/mL#	93
86)	Chrysene	12.14	228	42987	1.18	µg/mL	96
87)	Di-n-octyl phthalate	12.75	149	43664	1.12	µg/mL#	99
89)	Benzo(b)fluoranthene	13.30	252	31336	1.31	µg/mL	95
90)	Benzo(k)fluoranthene	13.33	252	30598	1.40	µg/mL	99
91)	Benzo(a)pyrene	13.68	252	23502	1.10	µg/mL	98
92)	Indeno(1,2,3-cd)pyrene	15.02	276	15248	0.66	µg/mL#	97
93)	Dibenz(a,h)anthracene	15.02	278	13688	0.72	µg/mL	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\100311\10031126.D Vial: 78
Acq On : 3 Oct 2011 6:56 pm Operator: Michael Truchan
Sample : RLVS S5 100311 Inst : SVOC 5
Misc : RLVS SW_8270A Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Oct 4 7:41 2011 Quant Results File: 092811S5.RES

Quant Method : C:\HPCHEM\2\METHODS\092811S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Thu Sep 29 11:24:56 2011
Response via : Initial Calibration
DataAcq Meth : 092811S5

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
94) Benzo(g,h,i)perylene	15.38	276	11353	0.58	µg/mL#	95

(#) = qualifier out of range (m) = manual integration

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108447

Level:(low/med) low

	EPA SAMPLE NO.	SMC1 (DCB) #	SMC2 (TCX) #							TOT OUT
01	lcs-23260	121	101							0
02	mb-23260	125	100							0
03	IOA-SS-EU36-0002	113	101							0
04	IOA-SS-DUP03-08101	104	92							0
05	IOA-SS-EU35-0002	116	99							0
06	IOA-SS-EU35-0002MS	120	92							0
07	IOA-SS-EU35-0002MS	122	102							0
08	IOA-SS-EU23-0002	107	104							0
09	IOA-SS-EU45-0002	103	87							0
10	IOA-SS-EU49-0002	108	87							0
11	IOA-SS-EU48-0002	97	91							0
12	IOA-SS-EU44-0002	112	98							0
13	IOA-SS-EU42-0002	113	95							0
14	IOA-SS-EU34-0002	103	94							0
15	IOA-SS-EU33-0002	90	79							0
16	IOA-SS-EU43-0002	92	84							0
17	lcs-23226	110	100							0
18	mb-23226	99	89							0
19	MS	94	103							0
20	MSD	90	106							0
21	IOA-SS-EU47-0002	93	92							0
22	IOA-SS-EU46-0002	77	74							0

		QC Limit
SMC1 (DCB)	=2,2′,3,3′,4,4′,5,5′,6,6′-Decachlorobiphenyl	60-125
SMC2 (TCX)	=Tetrachloro-m-xylene	60-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

4C

EPA SAMPLE NO.

mb-23260

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108447

Lab Sample ID: mb-23260 Lab File ID:

Matrix: (soil/water) S Extraction: (Type)

Sulfur Cleanup: (Y/N) N Date Extracted: 8/17/2011

Date Analyzed (1): 8/19/2011 Date Analyzed (2):

Time Analyzed (1): 3:53 Time Analyzed (2):

Instrument ID (1): GC-ECD 1 Instrument ID (2):

GC Column (1): CLPPest ID: 0.5 (mm) GC Column (2): ID: (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	lcs-23260	lcs-23260	8/19/2011	
2	OA-SS-EU36-000	1108447-003B	8/19/2011	
3	A-SS-DUP03-081(	1108447-004B	8/19/2011	
4	OA-SS-EU35-000	1108447-005B	8/19/2011	
5	A-SS-EU35-0002M	1108447-005B	8/19/2011	
6	-SS-EU35-0002M	1108447-005B	8/19/2011	
7	OA-SS-EU23-000	1108447-006B	8/19/2011	
8	OA-SS-EU45-000	1108447-007B	8/19/2011	
9	OA-SS-EU49-000	1108447-008B	8/19/2011	
10	OA-SS-EU48-000	1108447-009B	8/19/2011	
11	OA-SS-EU44-000	1108447-010B	8/19/2011	
12	OA-SS-EU42-000	1108447-012B	8/19/2011	
13	OA-SS-EU34-000	1108447-013B	8/19/2011	
14	OA-SS-EU33-000	1108447-014B	8/19/2011	
15	ZZZZZ	1108492-003a	8/19/2011	
16	ZZZZZ	1108534-001a	8/19/2011	
17	ZZZZZ	1108481-001a	8/19/2011	
18	ZZZZZ	1108481-003b	8/19/2011	
19	ZZZZZ	1108481-004b	8/19/2011	
20	ZZZZZ	1108481-005b	8/19/2011	
21	ZZZZZ	1108481-006a	8/19/2011	
22	ZZZZZ	1108580-001a	8/19/2011	
23	OA-SS-EU43-000	1108447-011B	8/19/2011	

COMMENTS: _____

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108447**

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8082S

Sample ID: lcs-23260	SampType: LCS	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/17/2011	RunNo: 42416
Client ID: LCSS	Batch ID: 23260	TestNo: SW8082	SW3550C	Analysis Date: 8/19/2011	SeqNo: 821120

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	170	33	166.5	0	102	40	140				
Aroclor 1260	160	33	166.5	0	98.8	60	130				
Surr: Decachlorobiphenyl	10		8.325		121	60	125				
Surr: Tetrachloro-m-xylene	8.4		8.325		101	60	125				

Sample ID: mb-23260	SampType: MBLK	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/17/2011	RunNo: 42416
Client ID: PBS	Batch ID: 23260	TestNo: SW8082	SW3550C	Analysis Date: 8/19/2011	SeqNo: 821121

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33									
Aroclor 1221	ND	33									
Aroclor 1232	ND	33									
Aroclor 1242	ND	33									
Aroclor 1248	ND	33									
Aroclor 1254	ND	33									
Aroclor 1260	ND	33									
Total PCBs	ND	33									
Surr: Decachlorobiphenyl	10		8.226		125	60	125				
Surr: Tetrachloro-m-xylene	8.2		8.226		99.7	60	125				

Sample ID: 1108447-005bms	SampType: MS	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/17/2011	RunNo: 42416
Client ID: IOA-SS-EU35-0002	Batch ID: 23260	TestNo: SW8082	SW3550C	Analysis Date: 8/19/2011	SeqNo: 821129

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	180	35	177.4	0	102	40	140				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeds
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108447**
15-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_8082S**

Sample ID: 1108447-005bms	SampType: MS	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/17/2011	RunNo: 42416
Client ID: IOA-SS-EU35-0002	Batch ID: 23260	TestNo: SW8082	SW3550C	Analysis Date: 8/19/2011	SeqNo: 821129

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1260	190	35	177.4	0	105	60	130				
Surr: Decachlorobiphenyl	11		8.872		120	60	125				
Surr: Tetrachloro-m-xylene	8.2		8.872		92.5	60	125				

Sample ID: 1108447-005bmsd	SampType: MSD	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/17/2011	RunNo: 42416
Client ID: IOA-SS-EU35-0002	Batch ID: 23260	TestNo: SW8082	SW3550C	Analysis Date: 8/19/2011	SeqNo: 821130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	190	35	177.1	0	105	40	140	181.5	2.22	25	
Aroclor 1260	190	35	177.1	0	106	60	130	185.7	0.679	25	
Surr: Decachlorobiphenyl	11		8.854		122	60	125		0	25	
Surr: Tetrachloro-m-xylene	9.1		8.854		102	60	125		0	25	

Sample ID: 1108425-007bms	SampType: MS	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/15/2011	RunNo: 42422
Client ID: ZZZZZZ	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823784

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	180	190	192.6	0	91.5	40	140				J
Aroclor 1260	640	190	192.6	467.2	91.8	60	130				
Surr: Decachlorobiphenyl	9.0		9.628		93.5	60	125				
Surr: Tetrachloro-m-xylene	9.9		9.628		103	60	125				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

4C

EPA SAMPLE NO.

mb-23226

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108447

Lab Sample ID: mb-23226 Lab File ID:

Matrix: (soil/water) S Extraction: (Type)

Sulfur Cleanup: (Y/N) N Date Extracted: 8/15/2011

Date Analyzed (1): 8/24/2011 Date Analyzed (2):

Time Analyzed (1): 16:01 Time Analyzed (2):

Instrument ID (1): GC-ECD 1 Instrument ID (2):

GC Column (1): CLPPest ID: 0.5 (mm) GC Column (2): ID: (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	lcs-23226	lcs-23226	8/24/2011	
2	ZZZZZ	1108425-001b	8/24/2011	
3	ZZZZZ	1108425-002b	8/24/2011	
4	ZZZZZ	1108425-003b	8/24/2011	
5	ZZZZZ	1108425-005b	8/24/2011	
6	ZZZZZ	1108425-006b	8/24/2011	
7	ZZZZZ	1108425-007b	8/24/2011	
8	ZZZZZ	1108425-008b	8/24/2011	
9	ZZZZZ	1108425-010b	8/24/2011	
10	MS	1108425-007bms	8/24/2011	
11	MSD	1108425-007bmsd	8/24/2011	
12	ZZZZZ	1108425-011b	8/24/2011	
13	ZZZZZ	1108425-012a	8/24/2011	
14	ZZZZZ	1108425-013b	8/24/2011	
15	ZZZZZ	1108425-014b	8/24/2011	
16	ZZZZZ	1108425-015a	8/24/2011	
17	ZZZZZ	1108425-016b	8/25/2011	
18	ZZZZZ	1108425-017b	8/25/2011	
19	ZZZZZ	1108425-018b	8/25/2011	
20	ZZZZZ	1108425-019b	8/25/2011	
21	ZZZZZ	1108425-020b	8/25/2011	
22	OA-SS-EU47-000	1108447-001B	8/25/2011	
23	OA-SS-EU46-000	1108447-002B	8/25/2011	

COMMENTS: _____

RTI LABORATORIES, INC.

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31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8082S

Sample ID: 1108425-007bmsd	SampType: MSD	TestCode: SW_8082S	Units: µg/Kg-dry	Prep Date: 8/15/2011	RunNo: 42422
Client ID: ZZZZZZ	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823785

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	200	190	192.4	0	102	40	140	0	0	25	
Aroclor 1260	690	190	192.4	467.2	116	60	130	0	0	25	
Surr: Decachlorobiphenyl	8.7		9.622		90.0	60	125		0	25	
Surr: Tetrachloro-m-xylene	10		9.622		106	60	125		0	25	

Sample ID: lcs-23226	SampType: LCS	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/15/2011	RunNo: 42422
Client ID: LCSS	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823816

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	180	33	166.3	0	106	40	140				
Aroclor 1260	180	33	166.3	0	109	60	130				
Surr: Decachlorobiphenyl	9.2		8.317		110	60	125				
Surr: Tetrachloro-m-xylene	8.4		8.317		100	60	125				

Sample ID: mb-23226	SampType: MBLK	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/15/2011	RunNo: 42422
Client ID: PBS	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33									U
Aroclor 1221	ND	33									U
Aroclor 1232	ND	33									U
Aroclor 1242	ND	33									U
Aroclor 1248	ND	33									U
Aroclor 1254	ND	33									U
Aroclor 1260	ND	33									U

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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31628 Glendale St.
Livonia, MI 48150
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Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: 1108447

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** SW_8082S

Sample ID: mb-23226	SampType: MBLK	TestCode: SW_8082S	Units: µg/Kg	Prep Date: 8/15/2011	RunNo: 42422
Client ID: PBS	Batch ID: 23226	TestNo: SW8082	SW3550C	Analysis Date: 8/24/2011	SeqNo: 823818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total PCBs	ND	33									
Surr: Decachlorobiphenyl	8.3		8.319		99.3	60	125				
Surr: Tetrachloro-m-xylene	7.4		8.319		88.6	60	125				

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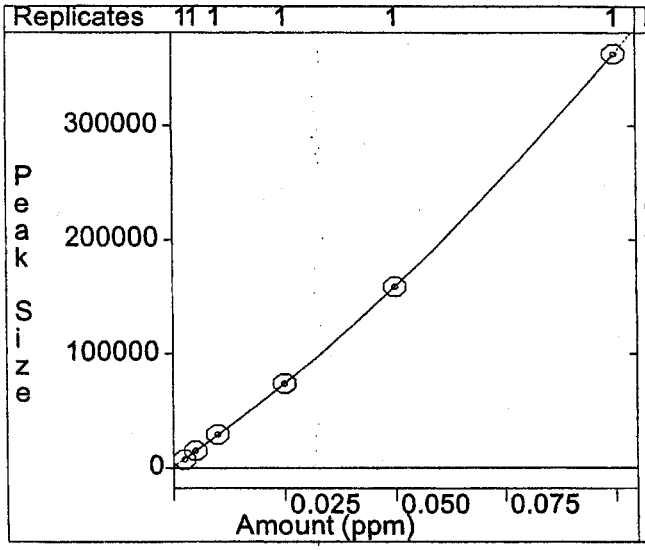
Qualifiers:

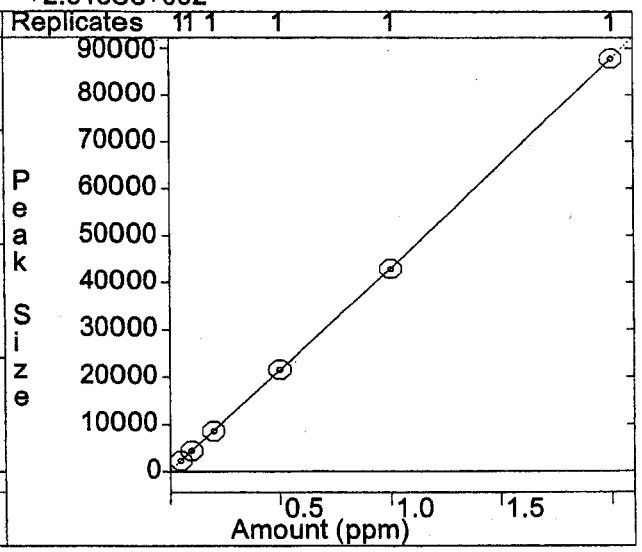
*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceede
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Print Date: 27 Sep 2011 18:03:38
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

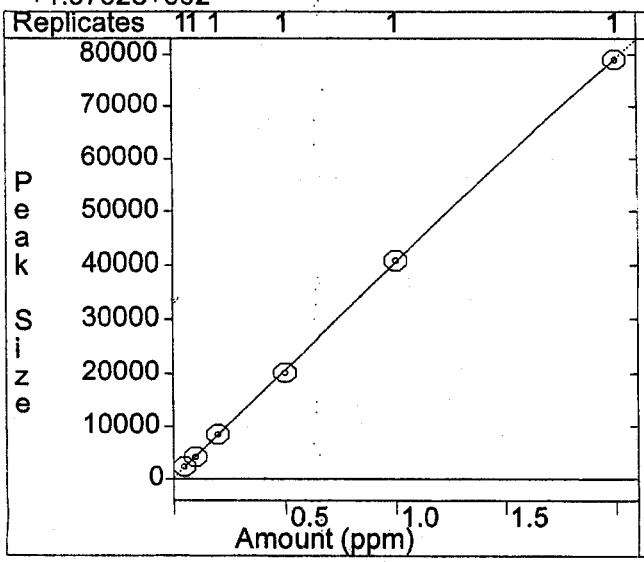
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 8.837%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999990
$y = +9.6147e+006x^2 +2.6665e+006x +1.2801e+003$



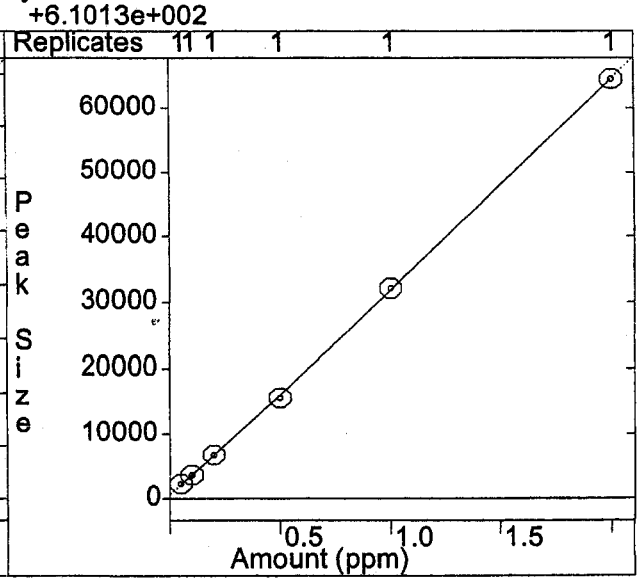
A1016-1
External Standard Analysis
Resp. Fact. RSD: 2.993%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999991
$y = +9.4887e+002x^2 +4.1878e+004x +2.5138e+002$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.418%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999933
$y = -9.0315e+002x^2 +4.1304e+004x +1.5762e+002$

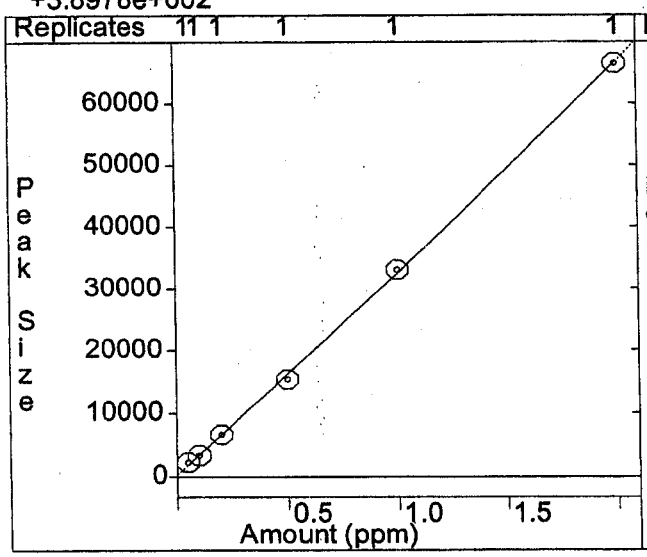


A1016-3
External Standard Analysis
Resp. Fact. RSD: 15.11%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999907
$y = +7.9697e+002x^2 +3.0416e+004x +6.1013e+002$

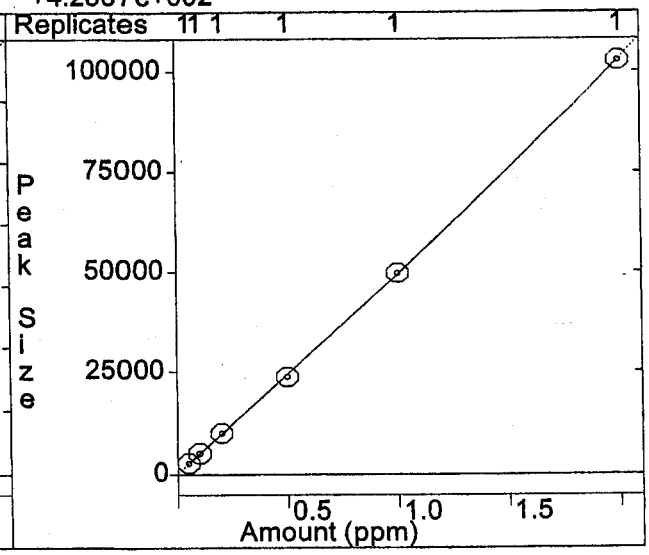


Print Date: 27 Sep 2011 18:03:39
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

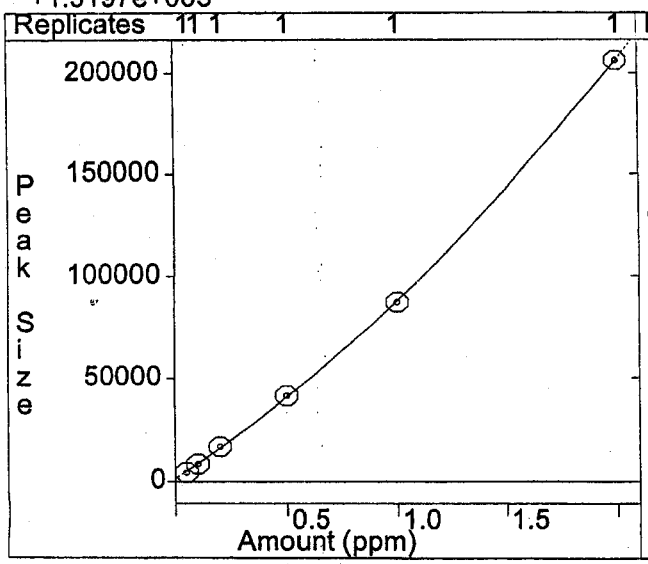
A1016-4
External Standard Analysis
Resp. Fact. RSD: 16.37%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999603
$y = +9.0453e+002x^2 +3.1221e+004x +3.8978e+002$



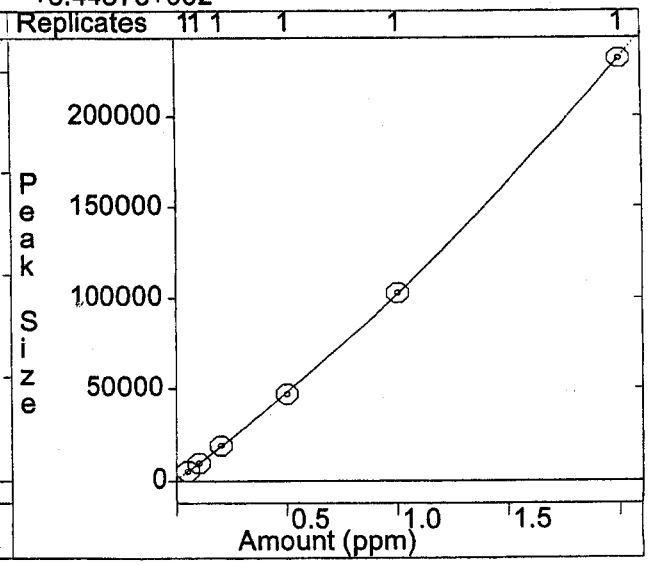
A1016-5
External Standard Analysis
Resp. Fact. RSD: 5.620%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999934
$y = +2.2467e+003x^2 +4.6668e+004x +4.2867e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 8.275%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999942
$y = +1.5881e+004x^2 +7.0653e+004x +1.5197e+003$

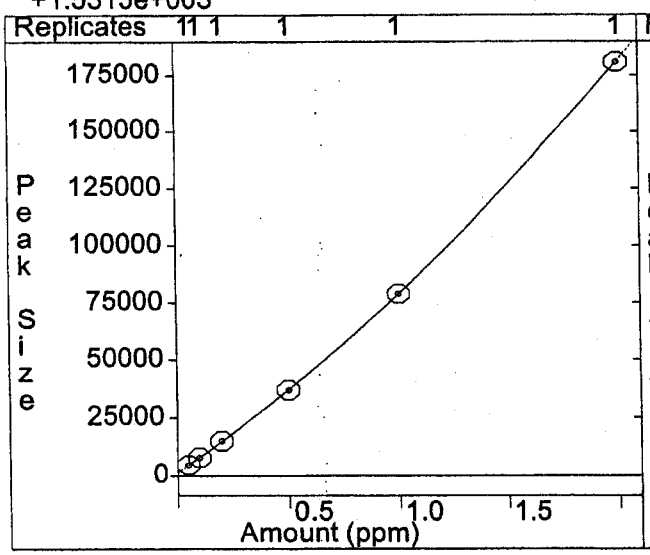


A1260-2
External Standard Analysis
Resp. Fact. RSD: 8.172%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999957
$y = +1.4481e+004x^2 +8.7025e+004x +8.4487e+002$

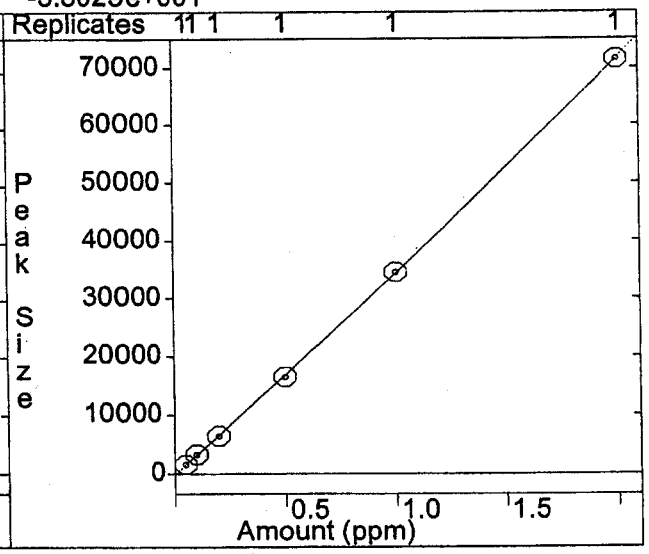


Print Date: 27 Sep 2011 18:03:39
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

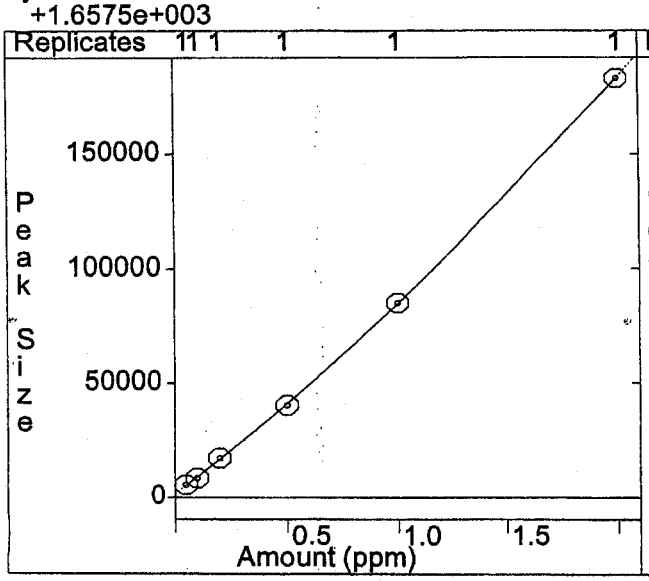
A1260-3
External Standard Analysis
Resp. Fact. RSD: 10.46%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999995
$y = +1.2300e+004x^2 +6.5042e+004x +1.5315e+003$



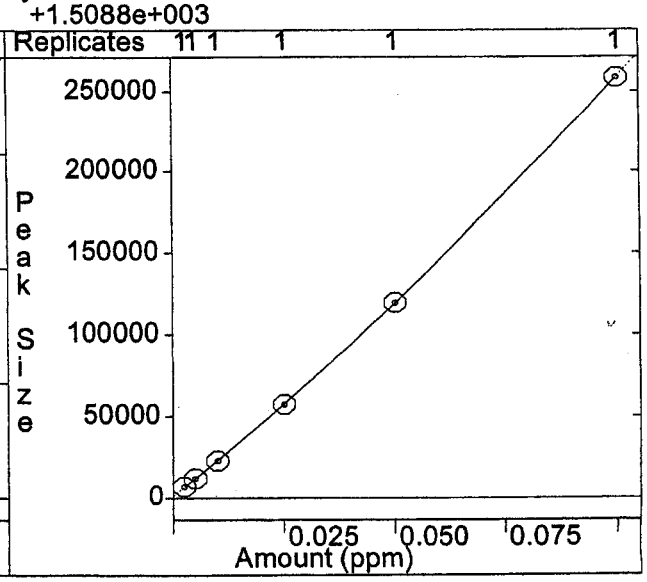
A1260-4
External Standard Analysis
Resp. Fact. RSD: 3.395%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999954
$y = +1.4469e+003x^2 +3.2896e+004x -3.3029e+001$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 13.17%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999949
$y = +8.1429e+003x^2 +7.4934e+004x +1.6575e+003$

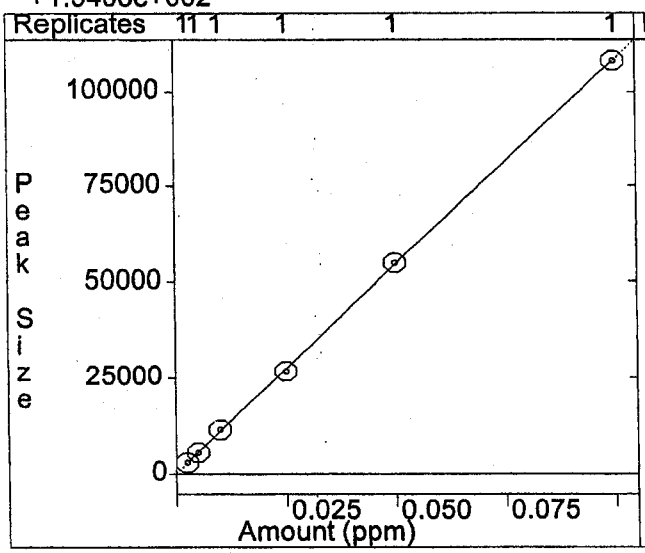


DCB-surr
External Standard Analysis
Resp. Fact. RSD: 9.058%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999991
$y = +4.2985e+006x^2 +2.1428e+006x +1.5088e+003$

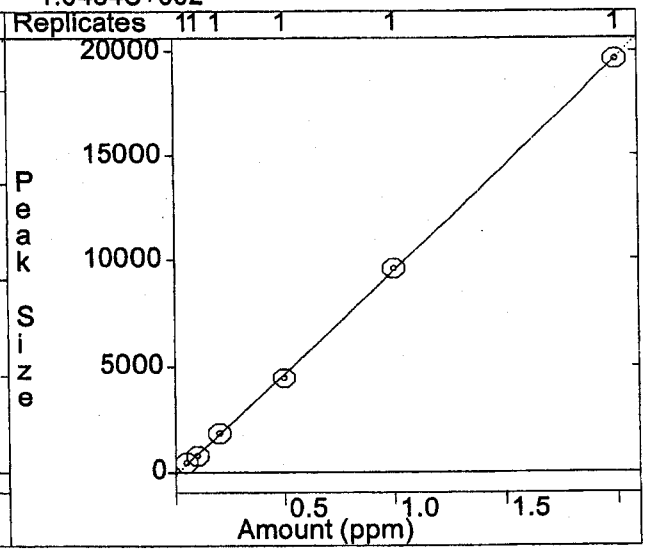


Print Date: 27 Sep 2011 18:03:56
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

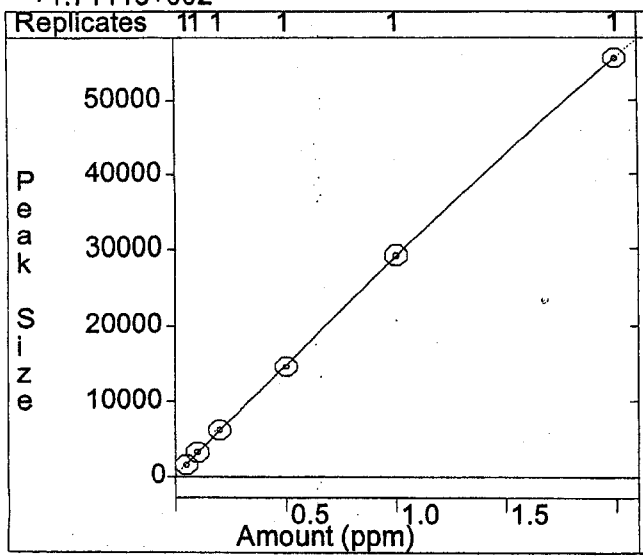
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 3.562%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999928
$y = -1.1185e+005x^2 + 1.0917e+006x + 1.5408e+002$



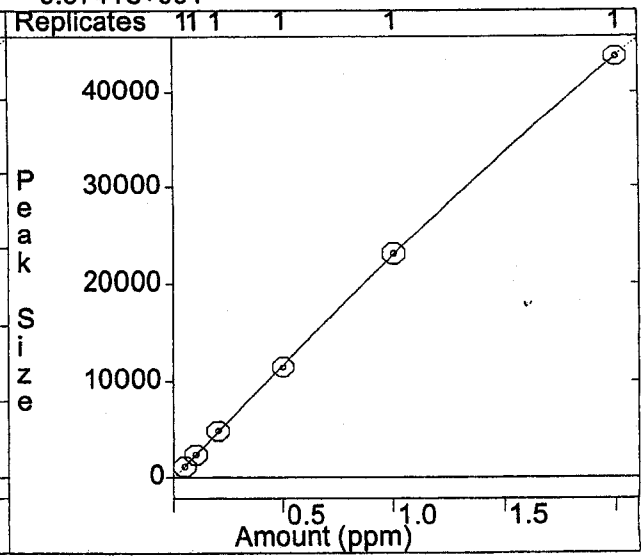
A1016-1
External Standard Analysis
Resp. Fact. RSD: 8.582%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999814
$y = +2.9861e+002x^2 + 9.2807e+003x - 1.0484e+002$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.160%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999963
$y = -1.1339e+003x^2 + 3.0062e+004x + 1.7111e+002$

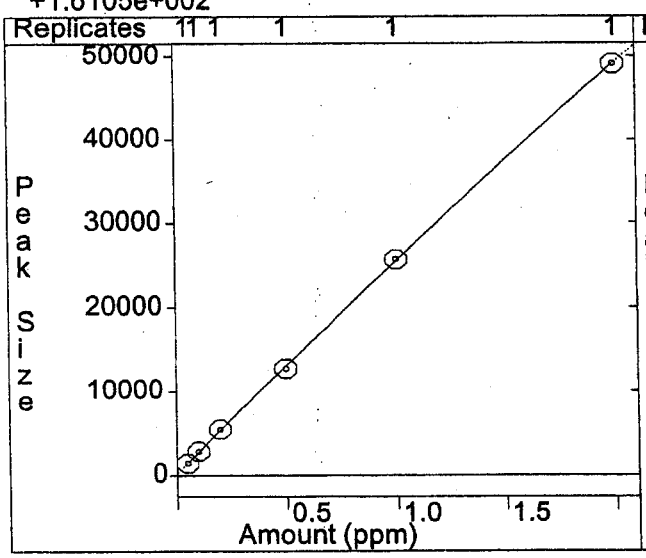


A1016-3
External Standard Analysis
Resp. Fact. RSD: 3.248%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999959
$y = -1.0395e+003x^2 + 2.4018e+004x - 5.9741e+001$

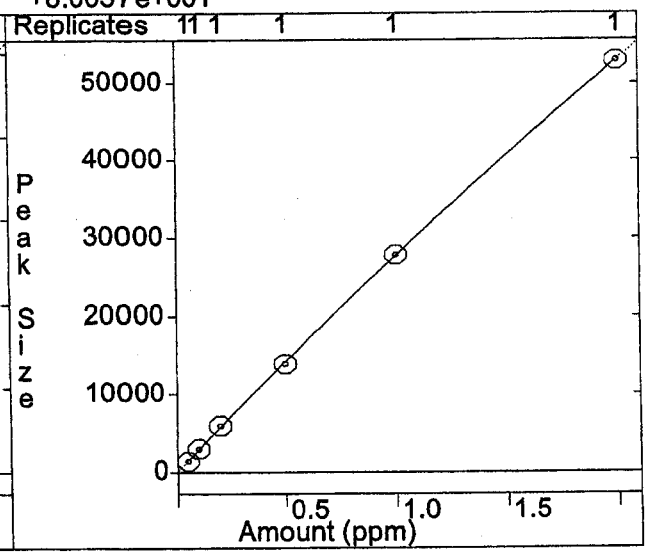


Print Date: 27 Sep 2011 18:03:57
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

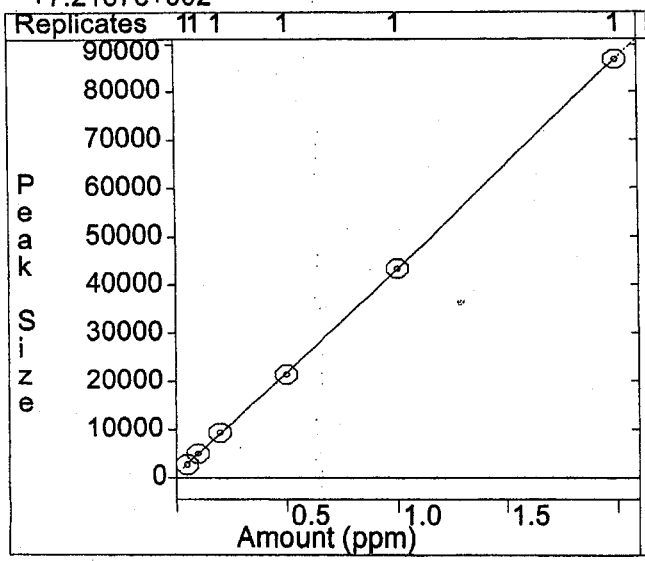
A1016-4
External Standard Analysis
Resp. Fact. RSD: 6.389%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999910
$y = -8.5164e+002x^2 + 2.6185e+004x + 1.6105e+002$



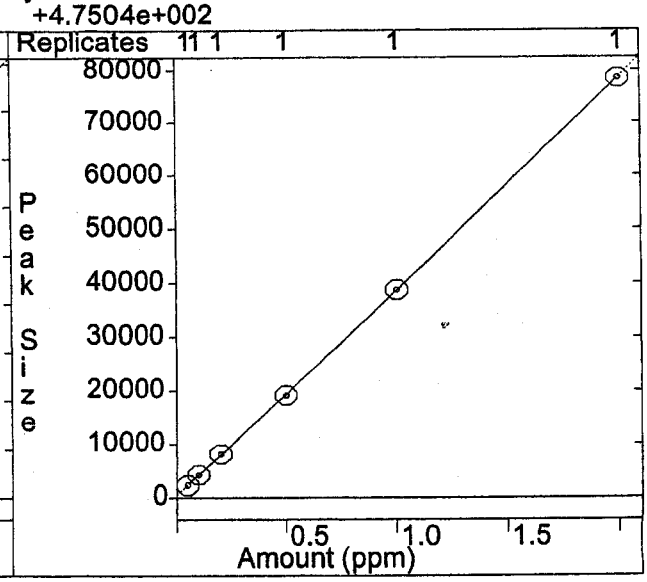
A1016-5
External Standard Analysis
Resp. Fact. RSD: 4.862%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999940
$y = -1.2161e+003x^2 + 2.8852e+004x + 8.0637e+001$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 9.147%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999953
$y = +6.0975e+002x^2 + 4.1867e+004x + 7.2187e+002$

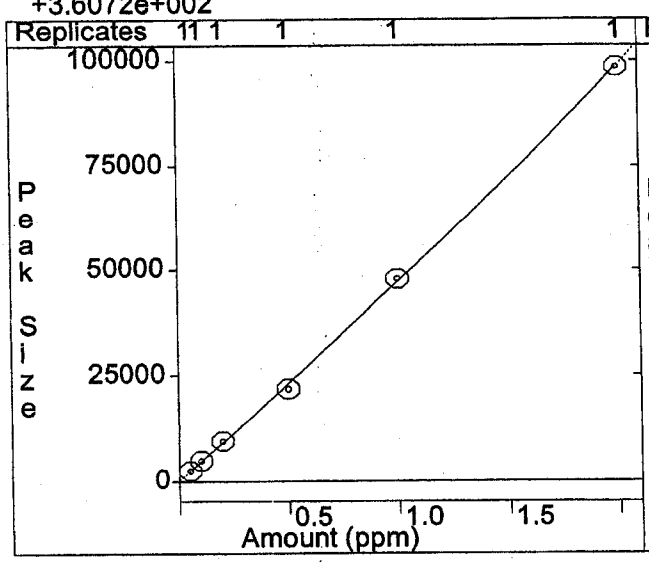


A1260-2
External Standard Analysis
Resp. Fact. RSD: 6.644%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999979
$y = +8.6012e+002x^2 + 3.7295e+004x + 4.7504e+002$

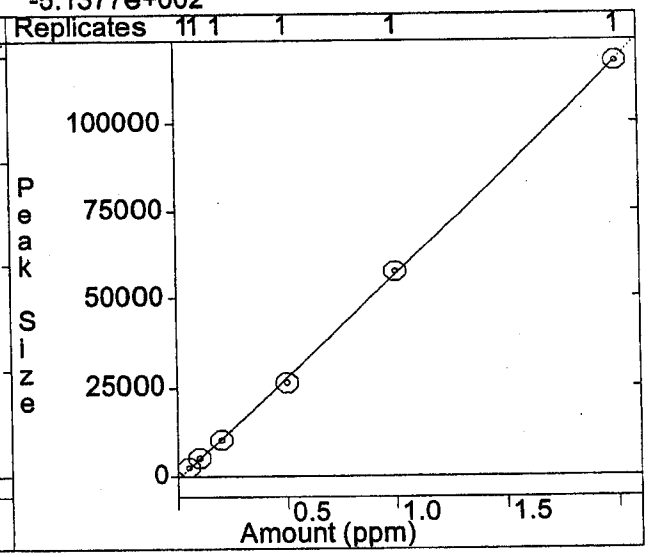


Print Date: 27 Sep 2011 18:03:58
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

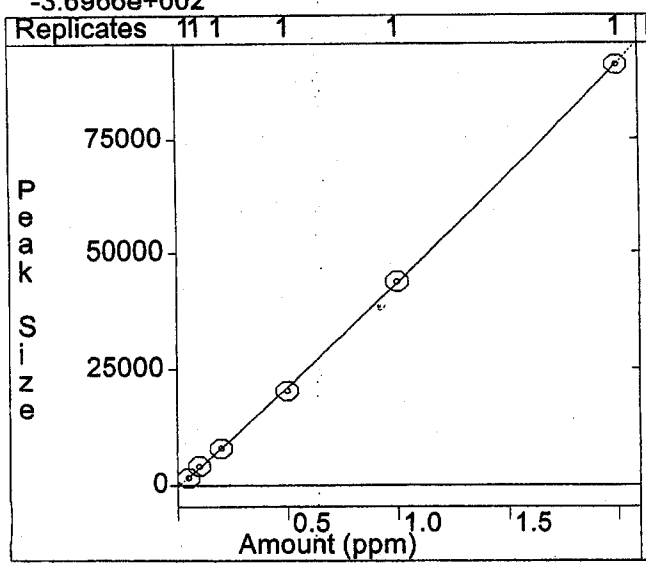
A1260-3
External Standard Analysis
Resp. Fact. RSD: 5.636%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999673
$y = +2.4316e+003x^2 +4.4260e+004x +3.6072e+002$



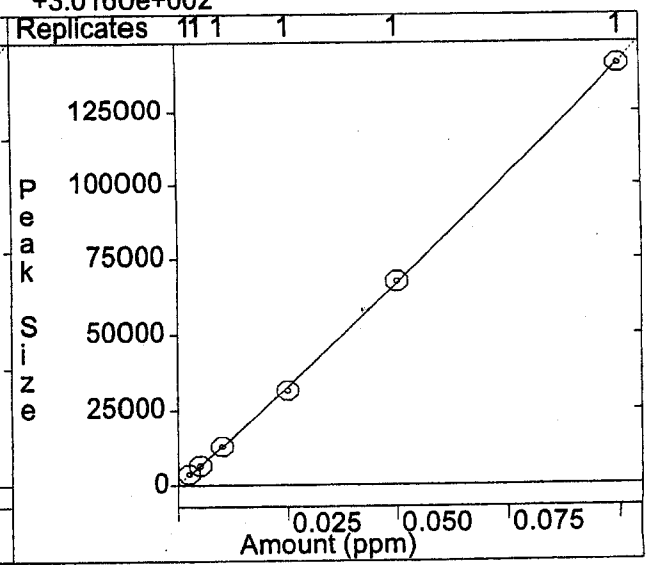
A1260-4
External Standard Analysis
Resp. Fact. RSD: 5.157%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999713
$y = +1.8833e+003x^2 +5.5211e+004x -5.1377e+002$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 11.30%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999869
$y = +2.1107e+003x^2 +4.1717e+004x -3.6966e+002$

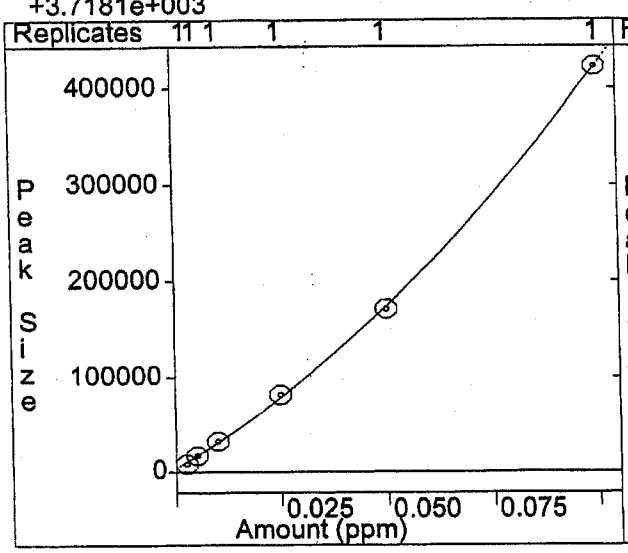


DCB-surr
External Standard Analysis
Resp. Fact. RSD: 6.676%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999868
$y = +1.5949e+006x^2 +1.2510e+006x +3.0160e+002$

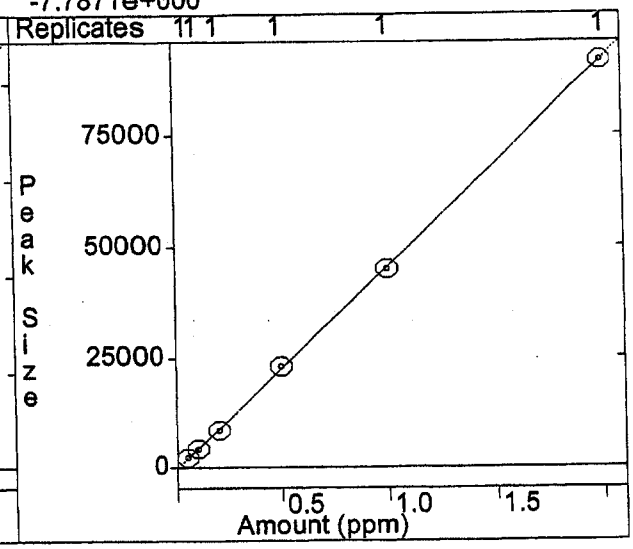


Print Date: 09 Sep 2011 12:25:22
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

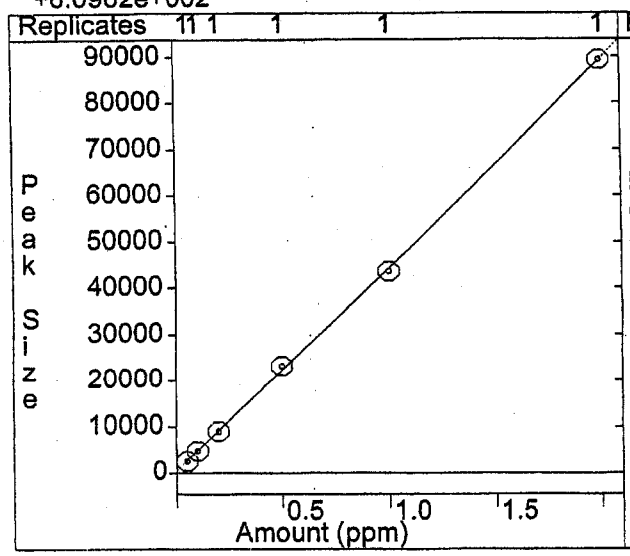
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 10.61%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999834
$y = +1.5694e+007x^2 +2.6242e+006x +3.7181e+003$



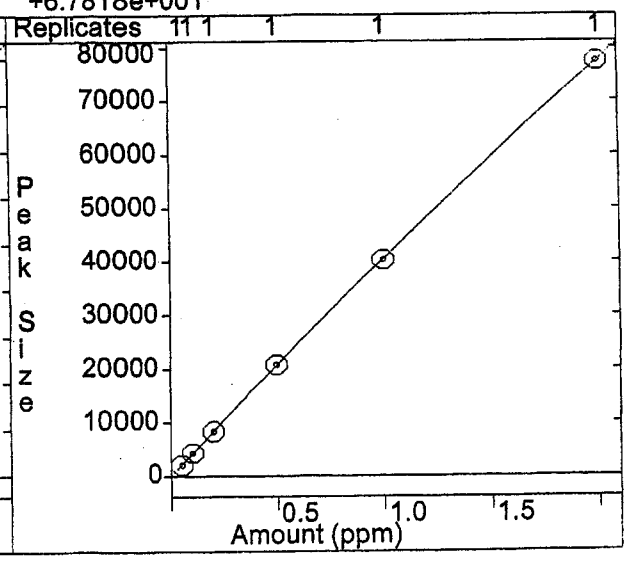
A1016-1
External Standard Analysis
Resp. Fact. RSD: 2.932%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999906
$y = +4.4676e+002x^2 +4.4870e+004x -7.7871e+000$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.320%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999755
$y = +7.2201e+002x^2 +4.2861e+004x +6.0962e+002$

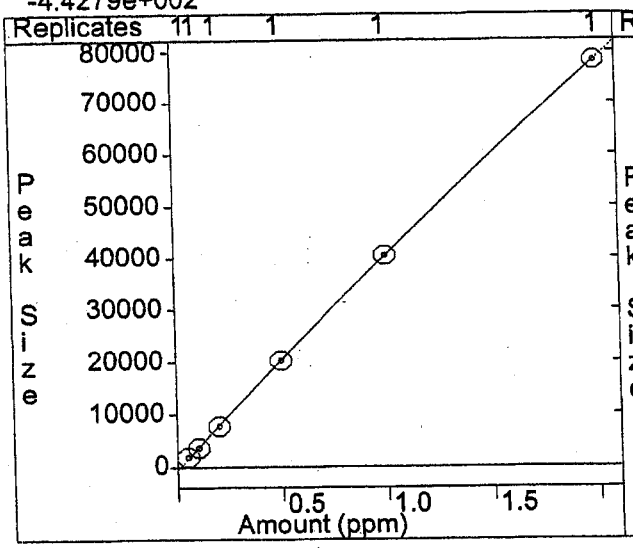


A1016-3
External Standard Analysis
Resp. Fact. RSD: 3.792%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999989
$y = -1.7049e+003x^2 +4.2059e+004x +6.7818e+001$

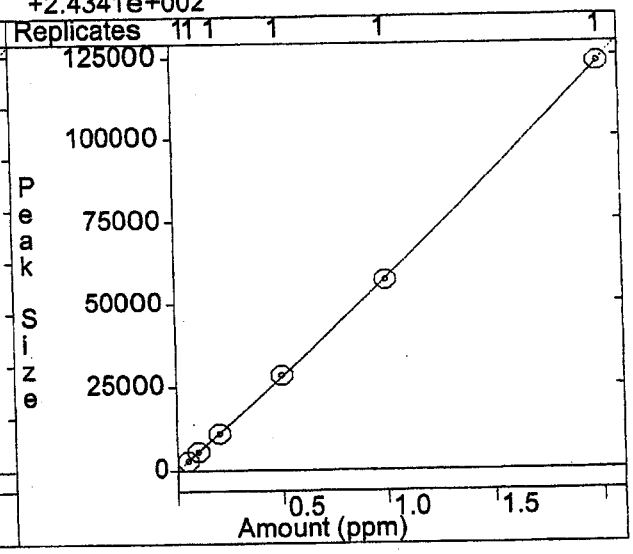


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

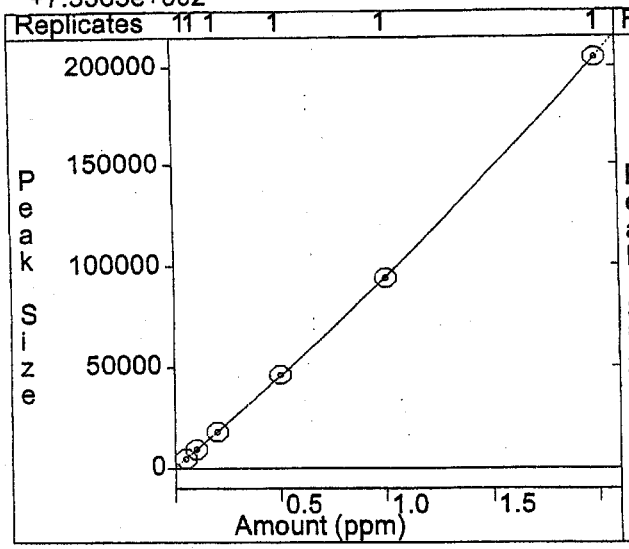
A1016-4
External Standard Analysis
Resp. Fact. RSD: 3.429%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999967
$y = -1.4912e+003x^2 + 4.2332e+004x - 4.4279e+002$



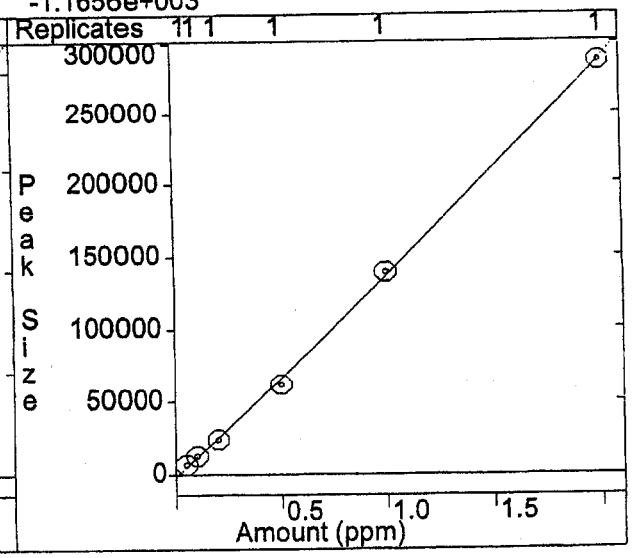
A1016-5
External Standard Analysis
Resp. Fact. RSD: 4.280%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999960
$y = +4.1703e+003x^2 + 5.3006e+004x + 2.4341e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 4.373%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999985
$y = +8.3062e+003x^2 + 8.5273e+004x + 7.3563e+002$

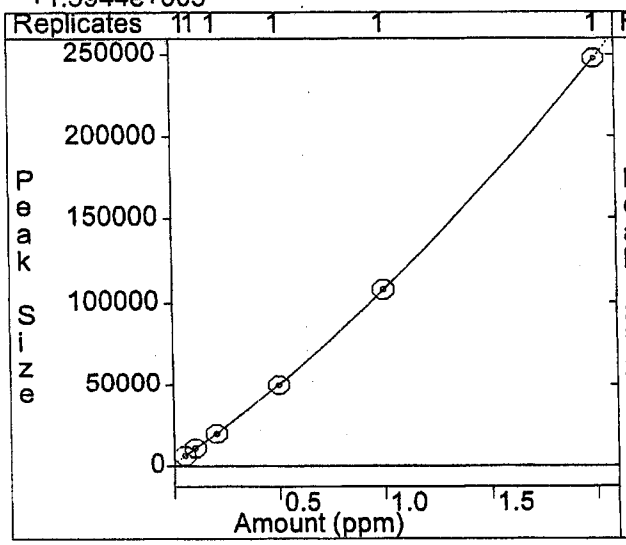


A1260-2
External Standard Analysis
Resp. Fact. RSD: 7.178%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999484
$y = +7.2046e+003x^2 + 1.2994e+005x - 1.1656e+003$

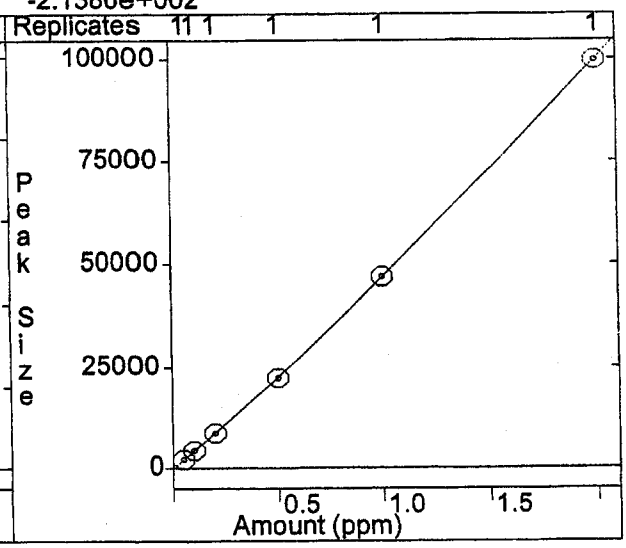


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

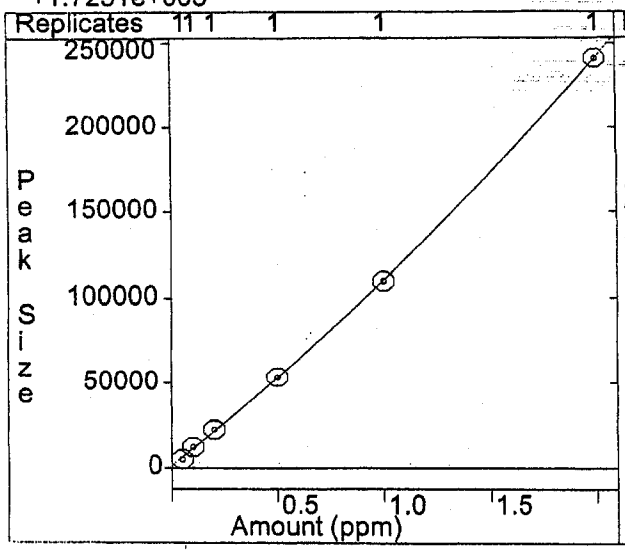
A1260-3
External Standard Analysis
Resp. Fact. RSD: 9.766%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999995
$y = +1.7085e+004x^2 +8.8762e+004x +1.5944e+003$



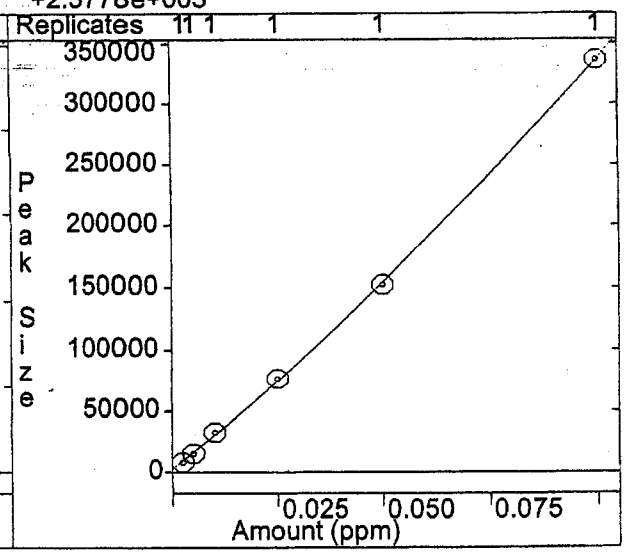
A1260-4
External Standard Analysis
Resp. Fact. RSD: 7.043%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999992
$y = +2.9664e+003x^2 +4.4033e+004x -2.1386e+002$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 6.879%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999901
$y = +1.0948e+004x^2 +9.7679e+004x +1.7231e+003$

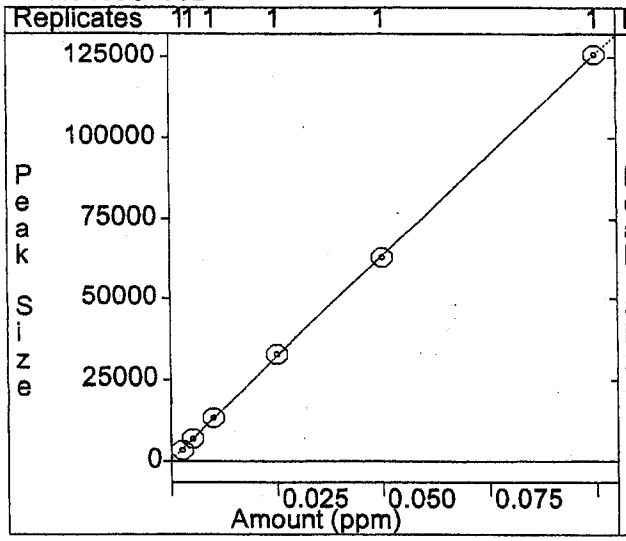


DCB-surr
External Standard Analysis
Resp. Fact. RSD: 4.335%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999820
$y = +6.1485e+006x^2 +2.7199e+006x +2.5778e+003$

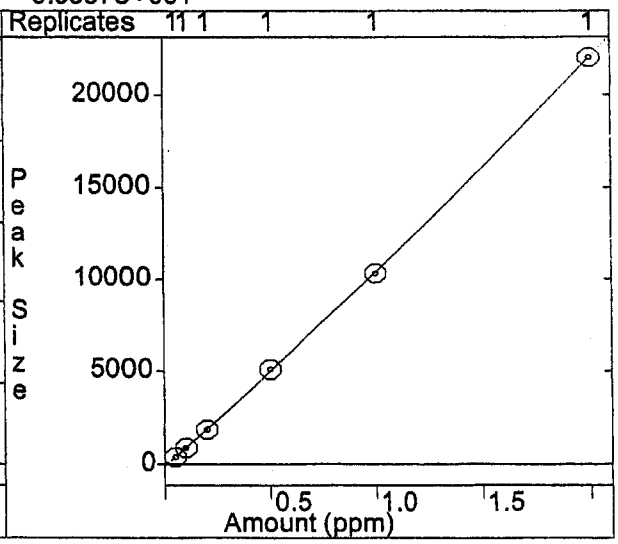


Print Date: 09 Sep 2011 12:25:41
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

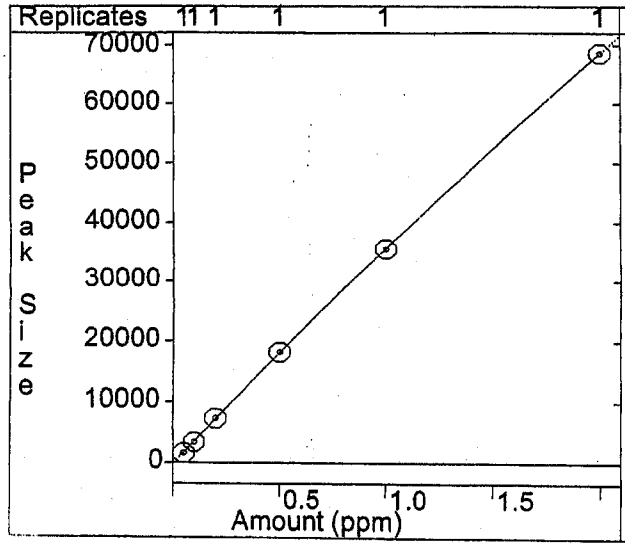
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 4.380%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999939
$y = -9.0289e+004x^2 + 1.2601e+006x + 6.6489e+002$



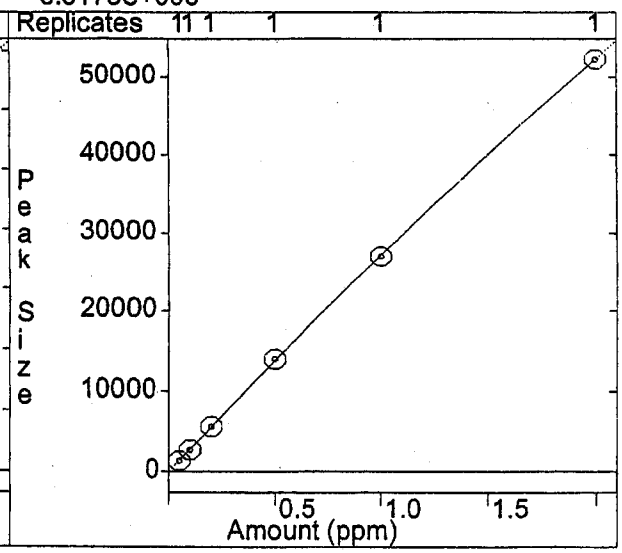
A1016-1
External Standard Analysis
Resp. Fact. RSD: 12.02%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999959
$y = +5.8532e+002x^2 + 9.8924e+003x - 9.5387e+001$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 5.449%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999979
$y = -1.4422e+003x^2 + 3.7283e+004x - 2.0180e+002$

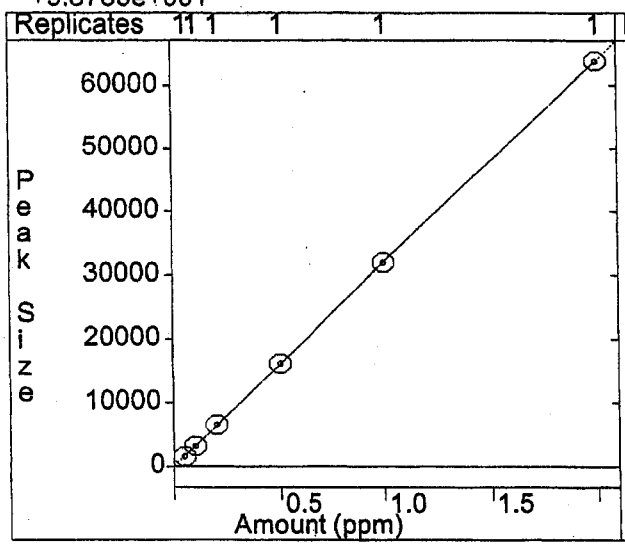


A1016-3
External Standard Analysis
Resp. Fact. RSD: 2.849%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999968
$y = -9.8918e+002x^2 + 2.8129e+004x - 5.8178e+000$

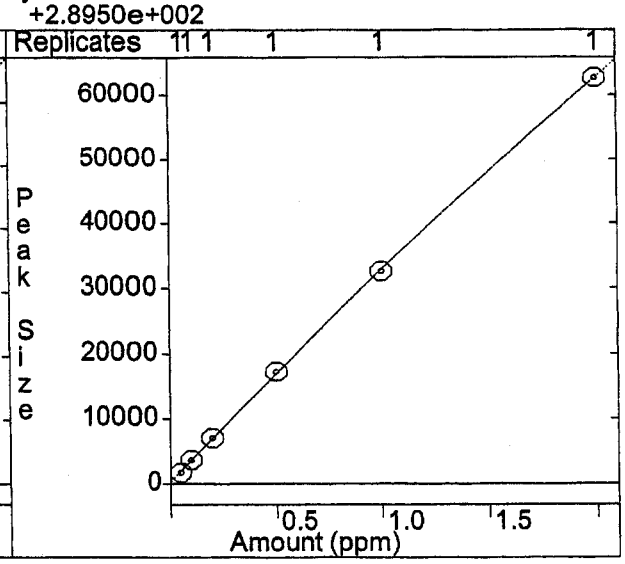


Print Date: 09 Sep 2011 12:25:42
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

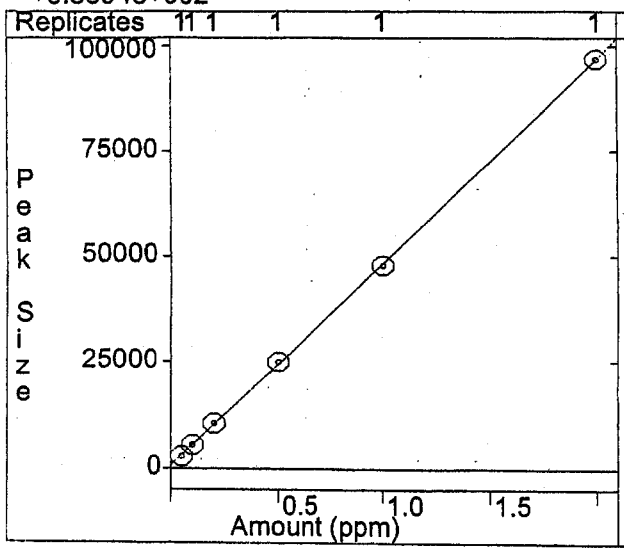
A1016-4
External Standard Analysis
Resp. Fact. RSD: 1.436%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999984
$y = -1.9929e+001x^2 + 3.1956e+004x + 9.8785e+001$



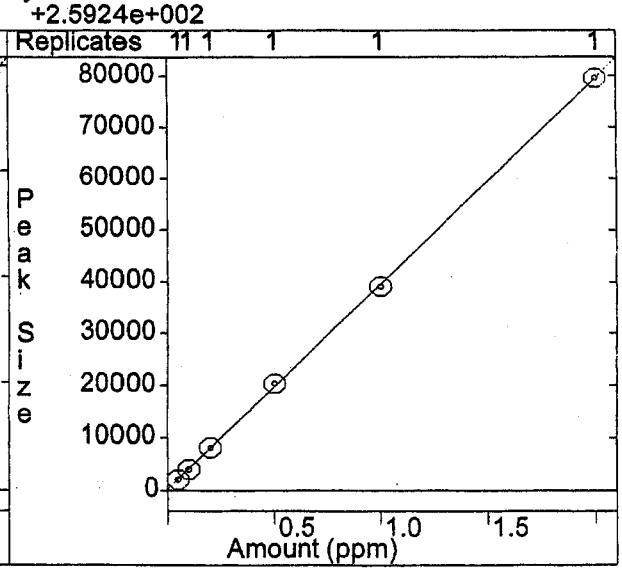
A1016-5
External Standard Analysis
Resp. Fact. RSD: 6.023%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999911
$y = -1.3799e+003x^2 + 3.3943e+004x + 2.8950e+002$



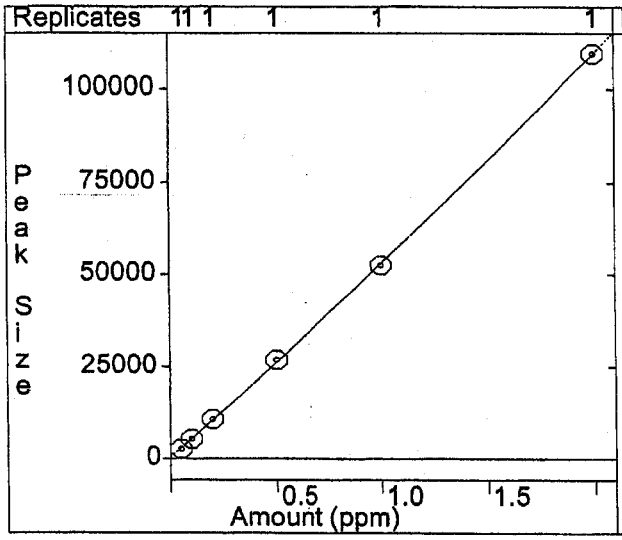
A1260-1
External Standard Analysis
Resp. Fact. RSD: 6.912%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999894
$y = +5.9703e+002x^2 + 4.6855e+004x + 8.3894e+002$



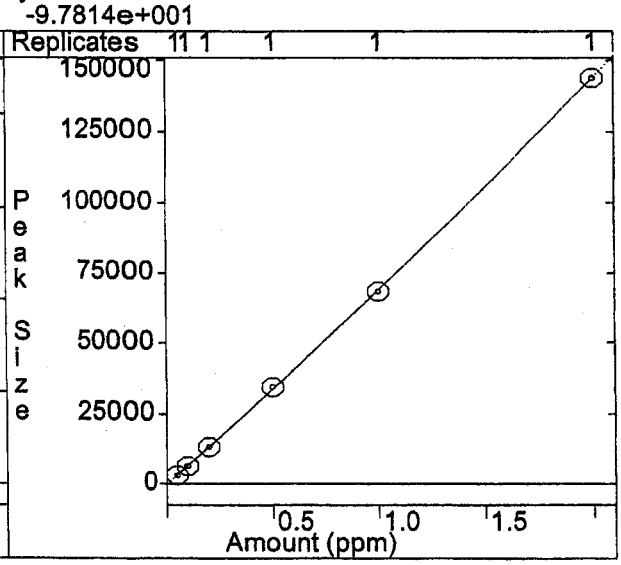
A1260-2
External Standard Analysis
Resp. Fact. RSD: 2.046%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999884
$y = +3.9972e+002x^2 + 3.8844e+004x + 2.5924e+002$



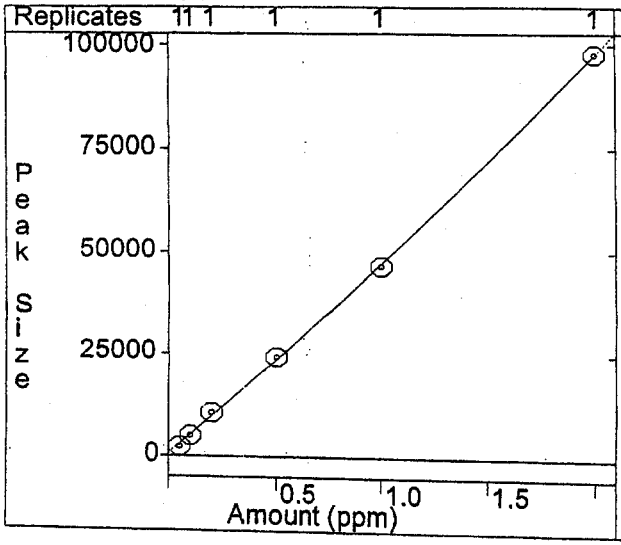
A1260-3
External Standard Analysis
Resp. Fact. RSD: 1.786%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999899
$y = +1.8672e+003x^2 +5.0771e+004x +4.1585e+002$



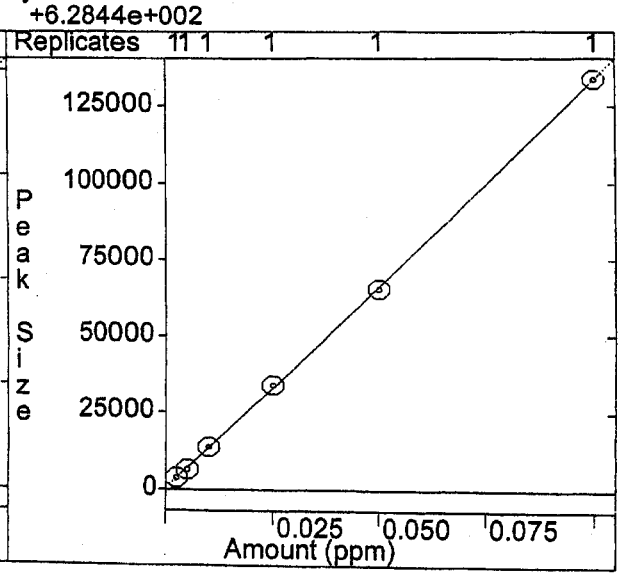
A1260-4
External Standard Analysis
Resp. Fact. RSD: 5.588%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999941
$y = +2.8845e+003x^2 +6.6088e+004x -9.7814e+001$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 4.957%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999694
$y = +1.9112e+003x^2 +4.4679e+004x +7.0719e+002$



DCB-surr
External Standard Analysis
Resp. Fact. RSD: 6.055%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999842
$y = +4.8039e+005x^2 +1.2829e+006x +6.2844e+002$



Verification Report

tle :
n File : d:\star\data\module 20ecd\08-2011\0812-pcb\icv pcb 1ppm .run
thod File : d:\star\data\module 20ecd\08-2011\0812-pcb\pcb08-12-2011.mth
mple ID : icv pcb 1ppm

jection Date: 8/12/11 6:04 AM Calculation Date: 8/22/11 3:08 PM

erator : M. Budziak
rkstation:
strument : ECD GC#1 module20
annel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

n Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
vel : 5
lerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0496	0.8	4.789	-0.003	157146	0	
2	A1016-1	1.0000	1.0611	6.1	5.641	-0.002	45757	1	
3	A1016-2	1.0000	0.9800	2.0	6.744	-0.004	39768	1	
4	A1016-3	1.0000	1.0836	8.4	7.710	-0.005	34505	1	
5	A1016-4	1.0000	1.0900	9.0	7.854	-0.005	35494	1	
6	A1016-5	1.0000	0.9921	0.8	8.172	-0.003	48941	1	
7	A1260-1	1.0000	1.0676	6.8	10.077	-0.005	95045	2	
8	A1260-2	1.0000	1.1394	13.9	11.569	-0.006	118799	2	
9	A1260-3	1.0000	1.0175	1.8	12.096	-0.006	80446	2	
10	A1260-4	1.0000	1.0304	3.0	12.293	-0.006	35401	2	
11	A1260-5	1.0000	1.0824	8.2	14.548	-0.010	92302	2	
12	DCB-surr	0.0500	0.0539	7.7	16.396	-0.012	129404	0	
	Group 0		0.1035			-0.015	286550		
	Group 1		5.2068			-0.019	204465		
	Group 2		5.3373			-0.033	421993		
	Totals:		10.6476			-0.067	913008		

tal Unidentified Counts : 4175222 counts

tected Peaks: 58 Rejected Peaks: 2 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 75380 microVolts

Verification Report

.tle :
ın File : d:\star\data\module 20ecd\08-2011\0812-pcb\icv pcb 1ppm .run
:thod File : d:\star\data\module 20ecd\08-2011\0812-pcb\pcb08-12-2011.mth
ımple ID : icv pcb 1ppm

ıjection Date: 8/12/11 6:04 AM Calculation Date: 8/25/11 5:11 PM

)erator : M. Budziak Detector Type: ADCB (10 Volts)
)rkstation: Bus Address : 20
ıstrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
ıannel : A = A Run Time : 20.002 min

· Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

ın Mode : Verification
:ak Measurement: Peak Area
.lculation Type: External Standard
:vel : 5
)lerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0529	5.7	3.847	-0.004	63595	0	
2	A1016-1	1.0000	0.9798	2.0	4.436	0.004	12884	1	
3	A1016-2	1.0000	1.0490	4.9	4.939	-0.003	32944	1	
4	A1016-3	1.0000	1.0526	5.3	5.246	-0.002	25741	1	
5	A1016-4	1.0000	1.0507	5.1	5.924	0.001	31531	1	
6	A1016-5	1.0000	1.0594	5.9	6.563	-0.001	30330	1	
7	A1260-1	1.0000	1.0583	5.8	8.559	-0.004	49651	2	
8	A1260-2	1.0000	0.9813	1.9	9.241	-0.003	45380	2	
9	A1260-3	1.0000	1.0662	6.6	9.758	-0.004	54404	2	
10	A1260-4	1.0000	1.0976	9.8	11.217	-0.008	61508	2	
11	A1260-5	1.0000	1.0992	9.9	12.137	-0.008	41603	2	
12	DCB-surr	0.0500	0.0543	8.6	13.015	-0.007	59883	0	
	Group 0		0.1072			-0.011	123478		
	Group 1		5.1915			-0.001	133430		
	Group 2		5.3026			-0.027	252546		
	Totals:		10.6013			-0.039	509454		

tal Unidentified Counts : 1186159 counts

tected Peaks: 43 Rejected Peaks: 2 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 10220 microVolts

RTI Laboratories

Run ID: GC-ECD 1_110818A **Run No.:** 42416

Analytical Run Date: 8/18/2011 **InstrumentID:** GC-ECD 1

Analyst: Mike Budziak **Column:** GC-ECD 1-Primary

Calibration ID: **Column ID:** 0.53mm 0.42um cat11340ser

Column Length: 30m

SampID	TestCode	SampType	Batch ID	Analysis Date/Time	QA By	Q	Comments
icb	SW_8082S	ICB	R42416	8/18/2011 7:48:24 PM	Robert Lynch		
crql pcb 0.05ppm a	SW_8082S	CRQL	R42416	8/18/2011 8:12:38 PM	Robert Lynch		
ccv pcb 1ppm a	SW_8082S	CCV	R42416	8/18/2011 8:36:48 PM	Robert Lynch		
1108257-007a	SW_8082S	SAMP	23223	8/18/2011 9:01:38 PM	Robert Lynch		Surrogate and MS/MSD diluted out. Chromatogram mislabeled as 1-20 dilution.
1108257-008a	SW_8082S	SAMP	23223	8/18/2011 9:25:53 PM	Robert Lynch		
1108257-009a	SW_8082S	SAMP	23223	8/18/2011 9:50:04 PM	Robert Lynch		Surrogate diluted out.
1108257-010a	SW_8082S	SAMP	23223	8/18/2011 10:14:19 PM	Robert Lynch		Surrogate diluted out.
1108257-011a	SW_8082S	SAMP	23223	8/18/2011 10:38:31 PM	Robert Lynch		
1108257-012a	SW_8082S	SAMP	23223	8/18/2011 11:02:44 PM	Robert Lynch		
1108257-014a	SW_8082S	SAMP	23223	8/18/2011 11:51:05 PM	Robert Lynch		
1108257-015a	SW_8082S	SAMP	23223	8/19/2011 12:15:16 AM	Robert Lynch		Surrogate diluted out.
1108257-016a	SW_8082S	SAMP	23223	8/19/2011 12:39:28 AM	Robert Lynch		
ccb b	SW_8082S	CCB	R42416	8/19/2011 1:03:48 AM	Robert Lynch		
crql pcb 0.05ppm b	SW_8082S	CRQL	R42416	8/19/2011 1:28:02 AM	Robert Lynch		
ccv pcb 1ppm b	SW_8082S	CCV	R42416	8/19/2011 1:52:10 AM	Robert Lynch		
1108257-017a	SW_8082S	SAMP	23223	8/19/2011 2:16:37 AM	Robert Lynch		
1108257-018a	SW_8082S	SAMP	23223	8/19/2011 2:40:43 AM	Robert Lynch		
1108257-019a	SW_8082S	SAMP	23223	8/19/2011 3:04:56 AM	Robert Lynch		Surrogate diluted out. All reported peaks are within calibration range.
lcs-23260	SW_8082S	LCS	23260	8/19/2011 3:29:11 AM	Robert Lynch		
mb-23260	SW_8082S	MBLK	23260	8/19/2011 3:53:17 AM	Robert Lynch		
1108447-003b	SW_8082S	SAMP	23260	8/19/2011 4:17:33 AM	Robert Lynch		
1108447-004b	SW_8082S	SAMP	23260	8/19/2011 4:41:42 AM	Robert Lynch		
1108447-005b	SW_8082S	SAMP	23260	8/19/2011 5:05:52 AM	Robert Lynch		
1108447-005bms	SW_8082S	MS	23260	8/19/2011 5:29:56 AM	Robert Lynch		
1108447-005bmsd	SW_8082S	MSD	23260	8/19/2011 5:54:10 AM	Robert Lynch		
1108447-006b	SW_8082S	SAMP	23260	8/19/2011 6:18:23 AM	Robert Lynch		
ccb c	SW_8082S	CCB	R42416	8/19/2011 6:42:27 AM	Robert Lynch		
crql pcb 0.05ppm c	SW_8082S	CRQL	R42416	8/19/2011 7:06:40 AM	Robert Lynch		
ccv pcb 1ppm c	SW_8082S	CCV	R42416	8/19/2011 7:30:50 AM	Robert Lynch		
1108447-007b	SW_8082S	SAMP	23260	8/19/2011 7:55:02 AM	Robert Lynch		
1108447-008b	SW_8082S	SAMP	23260	8/19/2011 8:19:11 AM	Robert Lynch		
1108447-009b	SW_8082S	SAMP	23260	8/19/2011 8:43:27 AM	Robert Lynch		
1108447-010b	SW_8082S	SAMP	23260	8/19/2011 9:07:38 AM	Robert Lynch		
1108447-012b	SW_8082S	SAMP	23260	8/19/2011 9:56:02 AM	Robert Lynch		
1108447-013b	SW_8082S	SAMP	23260	8/19/2011 10:28:35 AM	Robert Lynch		

RTI Laboratories

Run ID: GC-ECD 1_110818A Run No.: 42416

1108447-014b	SW_8082S	SAMP	23260	8/19/2011 10:52:46 AM	Robert Lynch		
1108492-003a	SW_8082S	SAMP	23260	8/19/2011 11:16:59 AM	Robert Lynch		
1108534-001a	SW_8082S	SAMP	23260	8/19/2011 11:41:08 AM	Robert Lynch		
1108534-001a	SW_8082S-3550	SAMP	23260	8/19/2011 11:41:08 AM	Robert Lynch		
ccb d	SW_8082S	CCB	R42416	8/19/2011 12:05:33 PM	Robert Lynch		
crql pcb 0.05ppm d	SW_8082S	CRQL	R42416	8/19/2011 12:29:47 PM	Robert Lynch		
ccv pcb 1ppm d	SW_8082S	CCV	R42416	8/19/2011 12:53:57 PM	Robert Lynch		
1108481-001a	SW_8082S	SAMP	23260	8/19/2011 1:18:14 PM	Robert Lynch		
1108481-003b	SW_8082S	SAMP	23260	8/19/2011 1:42:23 PM	Robert Lynch		
1108481-004b	SW_8082S	SAMP	23260	8/19/2011 2:06:36 PM	Robert Lynch		
1108481-005b	SW_8082S	SAMP	23260	8/19/2011 2:30:44 PM	Robert Lynch		
1108481-006a	SW_8082S	SAMP	23260	8/19/2011 2:54:59 PM	Robert Lynch		
1108580-001a	SW_8082S	SAMP	23260	8/19/2011 3:19:12 PM	Robert Lynch		
1108447-011b	SW_8082S	SAMP	23260	8/19/2011 3:43:26 PM	Robert Lynch		
1108257-013a	SW_8082S	SAMP	23223	8/19/2011 4:07:36 PM	Robert Lynch		Surrogate diluted out.
ccb e	SW_8082S	CCB	R42416	8/19/2011 6:16:38 PM	Robert Lynch		
crql pcb 0.05ppm e	SW_8082S	CRQL	R42416	8/19/2011 6:40:52 PM	Robert Lynch		
ccv pcb 1ppm e	SW_8082S	CCV	R42416	8/19/2011 7:04:58 PM	Robert Lynch		

RTI Laboratories

Run ID: GC-ECD 1_110824A **Run No.:** 42422

Analytical Run Date: 8/24/2011 **InstrumentID:** GC-ECD 1

Analyst: Mike Budziak **Column:** GC-ECD 1-Primary

Calibration ID: **Column ID:** 0.53mm 0.42um cat11340ser

Column Length: 30m

SampID	TestCode	SampType	Batch ID	Analysis Date/Time	QA By	Q	Comments
icb pcb082411a1	SW_8082A	ICB	R42422	8/24/2011 4:29:29 AM	Charles O'Bryan		
crql pcb082411a1	SW_8082A	CRQL	R42422	8/24/2011 4:53:45 AM	Charles O'Bryan		
ccv pcb082411a1	SW_8082A	CCV	R42422	8/24/2011 5:17:56 AM	Charles O'Bryan		
lcs-23191	EPA_608_PCB	LCS	23191	8/24/2011 5:42:09 AM	Charles O'Bryan		
lcsd-23191	EPA_608_PCB	LCSD	23191	8/24/2011 6:06:20 AM	Charles O'Bryan		
mb-23191	EPA_608_PCB	MBLK	23191	8/24/2011 6:30:33 AM	Charles O'Bryan		
1108424-001a	EPA_608_PCB	SAMP	23191	8/24/2011 6:54:42 AM	Charles O'Bryan		
1108391-002e	EPA_608_PCB	SAMP	23191	8/24/2011 7:18:58 AM	Charles O'Bryan		
1108390-001c	EPA_608_PCB	SAMP	23191	8/24/2011 7:43:08 AM	Charles O'Bryan		
lcs-23263	SW_8082A	LCS	23263	8/24/2011 8:07:23 AM	Charles O'Bryan		
lcsd-23263	SW_8082A	LCSD	23263	8/24/2011 8:31:35 AM	Charles O'Bryan		
mb-23263	SW_8082A	MBLK	23263	8/24/2011 8:55:50 AM	Charles O'Bryan		
1108623-007b	SW_8082A	SAMP	23263	8/24/2011 9:19:55 AM	Charles O'Bryan		
1108623-008b	SW_8082A	SAMP	23263	8/24/2011 9:44:09 AM	Charles O'Bryan		
1108536-001c	EPA_608_PCB	SAMP	23263	8/24/2011 10:08:17 AM	Charles O'Bryan		
1108536-002c	EPA_608_PCB	SAMP	23263	8/24/2011 10:32:29 AM	Charles O'Bryan		
lcs-23296	SW_8082S	LCS	23296	8/24/2011 10:56:35 AM	Charles O'Bryan		
mb-23296	SW_8082S	MBLK	23296	8/24/2011 11:20:53 AM	Charles O'Bryan		
1108727-001a	SW_8082S	SAMP	23296	8/24/2011 11:44:58 AM	Charles O'Bryan		
1108679-001a	SW_8082S	SAMP	23296	8/24/2011 12:09:13 PM	Charles O'Bryan		
1108679-001ams	SW_8082S	MS	23296	8/24/2011 12:33:22 PM	Charles O'Bryan		
1108679-001amsd	SW_8082S	MSD	23296	8/24/2011 12:57:33 PM	Charles O'Bryan		
ccb pcb082411b1	SW_8082A	CCB	R42422	8/24/2011 1:21:58 PM	Charles O'Bryan		
crql pcb082411b1	SW_8082A	CRQL	R42422	8/24/2011 1:46:13 PM	Charles O'Bryan		
ccv pcb082411b1	SW_8082A	CCV	R42422	8/24/2011 2:10:21 PM	Charles O'Bryan		
lcs-23226	SW_8082S	LCS	23226	8/24/2011 3:37:14 PM	Robert Lynch		
mb-23226	SW_8082S	MBLK	23226	8/24/2011 4:01:32 PM	Robert Lynch		
1108425-001b	SW_8082S	SAMP	23226	8/24/2011 4:25:44 PM	Robert Lynch		
1108425-002b	SW_8082S	SAMP	23226	8/24/2011 4:49:59 PM	Robert Lynch		
1108425-003b	SW_8082S	SAMP	23226	8/24/2011 5:14:09 PM	Robert Lynch		
1108425-005b	SW_8082S	SAMP	23226	8/24/2011 6:09:13 PM	Robert Lynch		
1108425-006b	SW_8082S	SAMP	23226	8/24/2011 6:33:24 PM	Robert Lynch		
1108425-007b	SW_8082S	SAMP	23226	8/24/2011 6:57:35 PM	Robert Lynch		
1108425-008b	SW_8082S	SAMP	23226	8/24/2011 7:21:44 PM	Robert Lynch		
1108425-010b	SW_8082S	SAMP	23226	8/24/2011 7:46:01 PM	Robert Lynch		
1108425-007bms	SW_8082S	SAMP	23226	8/24/2011 8:10:13 PM	Robert Lynch		

RTI Laboratories

Run ID: GC-ECD 1_110824A Run No.: 42422

1108425-007bmsd	SW_8082S	SAMP	23226	8/24/2011 8:34:24 PM	Robert Lynch		
1108425-011b	SW_8082S	SAMP	23226	8/24/2011 8:58:38 PM	Robert Lynch		
1108425-012a	SW_8082S	SAMP	23226	8/24/2011 9:22:53 PM	Robert Lynch		
ccb pcb082411c1	SW_8082S	CCB	R42422	8/24/2011 9:47:11 PM	Robert Lynch		
crql pcb082411c1	SW_8082S	CRQL	R42422	8/24/2011 10:11:24 PM	Robert Lynch		
ccv pcb082411c1	SW_8082S	ccv	R42422	8/24/2011 10:35:35 PM	Robert Lynch		
1108425-013b	SW_8082S	SAMP	23226	8/24/2011 11:00:00 PM	Robert Lynch		
1108425-014b	SW_8082S	SAMP	23226	8/24/2011 11:24:12 PM	Robert Lynch		
1108425-015a	SW_8082S	SAMP	23226	8/24/2011 11:48:23 PM	Robert Lynch		
1108425-016b	SW_8082S	SAMP	23226	8/25/2011 12:12:35 AM	Robert Lynch		
1108425-017b	SW_8082S	SAMP	23226	8/25/2011 12:36:45 AM	Robert Lynch		
1108425-018b	SW_8082S	SAMP	23226	8/25/2011 1:00:59 AM	Robert Lynch		
1108425-019b	SW_8082S	SAMP	23226	8/25/2011 1:25:11 AM	Robert Lynch		
1108425-020b	SW_8082S	SAMP	23226	8/25/2011 1:49:21 AM	Robert Lynch		
1108447-001b	SW_8082S	SAMP	23226	8/25/2011 2:13:32 AM	Robert Lynch		
1108447-002b	SW_8082S	SAMP	23226	8/25/2011 2:37:47 AM	Robert Lynch		
ccb pcb082411d1	SW_8082S	CCB	R42422	8/25/2011 3:01:56 AM	Robert Lynch		
crql pcb082411d1	SW_8082S	CRQL	R42422	8/25/2011 3:26:06 AM	Robert Lynch		
ccv pcb082411d1	SW_8082S	ccv	R42422	8/25/2011 3:50:17 AM	Robert Lynch		
lcs-23201	SW_8082S	LCS	23201	8/25/2011 4:14:33 AM	Robert Lynch		
mb-23201	SW_8082S	MBLK	23201	8/25/2011 4:38:46 AM	Robert Lynch		
1108201-003a	SW_8082S	SAMP	23201	8/25/2011 5:51:24 AM	Robert Lynch		
1108201-008a	SW_8082S	SAMP	23201	8/25/2011 7:52:16 AM	Robert Lynch		
1108201-009a	SW_8082S	SAMP	23201	8/25/2011 8:16:30 AM	Robert Lynch		
1108201-010a	SW_8082S	SAMP	23201	8/25/2011 8:40:41 AM	Robert Lynch		
ccb pcb082411e1	SW_8082S	CCB	R42422	8/25/2011 9:53:26 AM	Robert Lynch		
crql pcb082411e1	SW_8082S	CRQL	R42422	8/25/2011 10:17:41 AM	Robert Lynch		
ccv pcb082411e1	SW_8082S	ccv	R42422	8/25/2011 10:41:50 AM	Robert Lynch		
1108201-012a	SW_8082S	SAMP	23201	8/25/2011 12:01:12 PM	Robert Lynch		
1108201-001a	SW_8082S	SAMP	23201	8/25/2011 2:29:52 PM	Robert Lynch		
1108201-002a	SW_8082S	SAMP	23201	8/25/2011 2:54:01 PM	Robert Lynch		
1108201-004a	SW_8082S	SAMP	23201	8/25/2011 3:18:13 PM	Robert Lynch		
1108201-005a	SW_8082S	SAMP	23201	8/25/2011 3:42:23 PM	Robert Lynch		
ccb pcb082411f1	SW_8082S	CCB	R42422	8/25/2011 5:28:12 PM	Robert Lynch		
crql pcb082411f1	SW_8082S	CRQL	R42422	8/25/2011 6:02:25 PM	Robert Lynch		
ccv pcb082411f1	SW_8082S	ccv	R42422	8/25/2011 6:26:47 PM	Robert Lynch		
1108201-011a	SW_8082S	SAMP	23201	8/25/2011 7:17:48 PM	Robert Lynch		
1108201-006a	SW_8082S	SAMP	23201	8/25/2011 7:51:58 PM	Robert Lynch		
1108201-007a	SW_8082S	SAMP	23201	8/25/2011 8:26:09 PM	Robert Lynch		
1108201-013a	SW_8082S	SAMP	23201	8/25/2011 9:00:20 PM	Robert Lynch		
1108201-014a	SW_8082S	SAMP	23201	8/25/2011 9:34:36 PM	Robert Lynch		
1108201-002ams	SW_8082S	MS	23201	8/25/2011 10:08:45 PM	Robert Lynch		

Run ID: GC-ECD 1_110824A **Run No.: 42422**

1108201-002amsd	SW_8082S	MSD	23201	8/25/2011 10:42:56 PM	Robert Lynch		
ccb pcb082411g1	SW_8082S	CCB	R42422	8/25/2011 11:17:13 PM	Robert Lynch		
crql pcb082411g1	SW_8082S	CRQL	R42422	8/25/2011 11:51:24 PM	Robert Lynch		
ccv pcb082411g1	SW_8082S	ccv	R42422	8/26/2011 12:25:32 AM	Robert Lynch		

Verification Report

itle :
in File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm b.run
ethod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
ample ID : ccv pcb 1ppm b

ijection Date: 8/19/11 1:52 AM Calculation Date: 8/23/11 6:13 PM

perator : M. Budziak
orkstation:
istrument : ECD GC#f module20
hannel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

in Mode : Verification
eak Measurement: Peak Area
alculation Type: External Standard
evel : 5
olerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0531	6.2	4.784	-0.008	170067	0	
2	A1016-1	1.0000	0.9080	9.2	5.638	-0.005	39059	1	
3	A1016-2	1.0000	1.0982	9.8	6.746	-0.030	44427	1	
4	A1016-3	1.0000	1.0859	8.6	7.711	-0.004	34577	1	
5	A1016-4	1.0000	1.0477	4.8	7.857	-0.002	34093	1	
6	A1016-5	1.0000	1.0826	8.3	8.173	-0.002	53587	1	
7	A1260-1	1.0000	0.9206	7.9	10.080	-0.002	80022	2	
8	A1260-2	1.0000	1.0653	6.5	11.571	-0.004	109990	2	
9	A1260-3	1.0000	1.1092	10.9	12.098	-0.004	88806	2	
10	A1260-4	1.0000	1.1414	14.1	12.295	-0.004	39400	2	
11	A1260-5	1.0000	1.0923	9.2	14.547	-0.010	93220	2	
12	DCB-surr	0.0500	0.0554	10.7	16.396	-0.012	133319	0	
	Group 0		0.1085			-0.020	303386		
	Group 1		5.2224			-0.043	205743		
	Group 2		5.3288			-0.024	411438		
	Totals:		10.6597			-0.087	920567		

otal Unidentified Counts : 4180687 counts

etected Peaks: 51 Rejected Peaks: 2 Identified Peaks: 12

ultiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

aseline Offset: 82210 microVolts

Verification Report

tle :
n File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm b.run
thod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
mple ID : ccv pcb 1ppm b

jection Date: 8/19/11 1:52 AM Calculation Date: 8/25/11 12:04 PM

erator : M. Budziak
rkstation:
strument : ECD GC#1 module20
annel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

n Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
vel : 5
lerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0560	12.0	3.833	-0.003	60924	0	
2	A1016-1	1.0000	1.0679	6.8	4.418	-0.010	10146	1	
3	A1016-2	1.0000	1.1446	14.5	4.932	0.003	33093	1	
4	A1016-3	1.0000	1.1378	13.8	5.239	-0.000	25923	1	
5	A1016-4	1.0000	1.0148	1.5	5.915	0.001	25857	1	
6	A1016-5	1.0000	0.9772	2.3	6.555	0.007	27114	1	
7	A1260-1	1.0000	1.0828	8.3	8.556	0.007	46769	2	
8	A1260-2	1.0000	1.0588	5.9	9.235	0.005	40927	2	
9	A1260-3	1.0000	1.1308	13.1	9.756	0.006	53517	2	
10	A1260-4	1.0000	1.1022	10.2	11.218	0.009	62630	2	
11	A1260-5	1.0000	1.0659	6.6	12.133	0.010	46495	2	
12	DCB-surr	0.0500	0.0492	1.6	13.010	0.013	65712	0	
	Group 0		0.1052			0.010	126636		
	Group 1		5.3423			0.001	122133		
	Group 2		5.4405			0.037	250338		
	Totals:		10.8880			0.048	499107		

tal Unidentified Counts : 1147333 counts

tected Peaks: 45 Rejected Peaks: 2 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 12740 microVolts

Verification Report

tle :
n File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm c.run
thod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
mple ID : ccv pcb 1ppm c

jection Date: 8/19/11 7:30 AM Calculation Date: 8/23/11 6:14 PM

erator : M. Budziak Detector Type: ADCB (10 Volts)
rkstation: Bus Address : 20
strument : ECD GC#1 module20 Sample Rate : 10.00 Hz
annel : B = B Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

n Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
vel : 5
lerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0551	10.2	4.788	-0.004	177314	0	
2	A1016-1	1.0000	0.9297	7.0	5.640	-0.003	40007	1	
3	A1016-2	1.0000	1.0745	7.4	6.746	-0.030	43494	1	
4	A1016-3	1.0000	1.1383	13.8	7.710	-0.005	36266	1	
5	A1016-4	1.0000	1.0899	9.0	7.857	-0.003	35491	1	
6	A1016-5	1.0000	1.1084	10.8	8.172	-0.003	54917	1	
7	A1260-1	1.0000	1.0738	7.4	10.079	-0.003	95694	2	
8	A1260-2	1.0000	0.9451	5.5	11.570	-0.005	96026	2	
9	A1260-3	1.0000	0.9735	2.7	12.098	-0.004	76503	2	
10	A1260-4	1.0000	0.9230	7.7	12.295	-0.004	31562	2	
11	A1260-5	1.0000	1.0537	5.4	14.546	-0.012	89653	2	
12	DCB-surr	0.0500	0.0512	2.3	16.391	-0.017	122404	0	
	Group 0		0.1063			-0.021	299718		
	Group 1		5.3408			-0.044	210175		
	Group 2		4.9691			-0.028	389438		
	Totals:		10.4162			-0.093	899331		

tal Unidentified Counts : 4727117 counts

tected Peaks: 47 Rejected Peaks: 0 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 95180 microVolts

Verification Report

tle :
n File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm c.run
thod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
mple ID : ccv pcb 1ppm c

jection Date: 8/19/11 7:30 AM Calculation Date: 9/27/11 5:03 PM

erator : M. Budziak Detector Type: ADCB (10 Volts)
rkstation: Bus Address : 20
strument : ECD GC#1 module20 Sample Rate : 10.00 Hz
annel : A = A Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

n Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
vel : 5
lerance : 15.0%

eak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0565	13.0	3.841	0.005	61492	0	
2	A1016-1	1.0000	1.0312	3.1	4.421	-0.007	9783	1	
3	A1016-2	1.0000	1.0731	7.3	4.936	0.007	31125	1	
4	A1016-3	1.0000	0.9471	5.3	5.242	0.003	21755	1	
5	A1016-4	1.0000	1.0623	6.2	5.918	0.004	27015	1	
6	A1016-5	1.0000	0.9490	5.1	6.557	0.009	26365	1	
7	A1260-1	1.0000	1.0718	7.2	8.558	0.009	46293	2	
8	A1260-2	1.0000	0.9344	6.6	9.238	0.008	36076	2	
9	A1260-3	1.0000	1.0488	4.9	9.757	0.007	49454	2	
10	A1260-4	1.0000	1.0398	4.0	11.219	0.010	58929	2	
11	A1260-5	1.0000	1.0000	0.0	12.137	0.014	43457	2	
12	DCB-surr	0.0500	0.0485	3.1	13.012	0.016	64682	0	
	Group 0		0.1050			0.021	126174		
	Group 1		5.0627			0.016	116043		
	Group 2		5.0948			0.048	234209		
	Totals:		10.2625			0.085	476426		

tal Unidentified Counts : 1134292 counts

tected Peaks: 54 Rejected Peaks: 8 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 16270 microVolts

Verification Report

:le :
1 File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm d.run
:hod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
ıple ID : ccv pcb 1ppm d

jection Date: 8/19/11 12:53 PM Calculation Date: 8/23/11 6:20 PM

erator : M. Budziak
:kstation:
strument : ECD GC#1 module20
annel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

1 Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
rel : 5
lerance : 15.0%

eak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0571	14.1	4.798	0.006	184783	0	
2	A1016-1	1.0000	0.9416	5.8	5.652	0.009	40526	1	
3	A1016-2	1.0000	1.1113	11.1	6.758	-0.018	44941	1	
4	A1016-3	1.0000	1.1203	12.0	7.721	0.006	35684	1	
5	A1016-4	1.0000	1.1018	10.2	7.867	0.008	35888	1	
6	A1016-5	1.0000	1.1483	14.8	8.183	0.008	56979	1	
7	A1260-1	1.0000	1.0529	5.3	10.089	0.007	93517	2	
8	A1260-2	1.0000	1.0783	7.8	11.580	0.005	111525	2	
9	A1260-3	1.0000	1.1271	12.7	12.108	0.006	90464	2	
10	A1260-4	1.0000	1.0467	4.7	12.304	0.005	35984	2	
11	A1260-5	1.0000	1.1136	11.4	14.563	0.005	95199	2	
12	DCB-surr	0.0500	0.0556	11.3	16.416	0.008	134017	0	
	Group 0		0.1127			0.014	318800		
	Group 1		5.4233			0.013	214018		
	Group 2		5.4186			0.028	426689		
	Totals:		10.9546			0.055	959507		

tal Unidentified Counts : 5525953 counts

tected Peaks: 50 Rejected Peaks: 0 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 93360 microVolts

Verification Report

:le :
ı File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm d.run
:hod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
ıple ID : ccv pcb 1ppm d

ection Date: 8/19/11 12:53 PM Calculation Date: 9/27/11 5:04 PM

:rator : M. Budziak Detector Type: ADCB (10 Volts)
:kstation: Bus Address : 20
:trument : ECD GC#1 module20 Sample Rate : 10.00 Hz
ınnel : A = A Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

ı Mode : Verification
ık Measurement: Peak Area
.culation Type: External Standard
rel : 5
.erance : 15.0%

ak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0554	10.7	3.849	0.013	60239	0	
2	A1016-1	1.0000	1.0449	4.5	4.439	0.011	9919	1	
3	A1016-2	1.0000	1.0940	9.4	4.948	0.019	31701	1	
4	A1016-3	1.0000	0.9676	3.2	5.254	0.015	22207	1	
5	A1016-4	1.0000	1.0991	9.9	5.931	0.017	27913	1	
6	A1016-5	1.0000	0.9720	2.8	6.571	0.023	26975	1	
7	A1260-1	1.0000	1.1193	11.9	8.569	0.020	48347	2	
8	A1260-2	1.0000	0.9704	3.0	9.249	0.019	37477	2	
9	A1260-3	1.0000	1.1084	10.8	9.767	0.017	52405	2	
10	A1260-4	1.0000	1.1432	14.3	11.229	0.020	65062	2	
11	A1260-5	1.0000	1.1428	14.3	12.148	0.024	50061	2	
12	DCB-surr	0.0500	0.0534	6.8	13.024	0.027	71641	0	
	Group 0		0.1088			0.040	131880		
	Group 1		5.1776			0.085	118715		
	Group 2		5.4841			0.100	253352		
	Totals:		10.7705			0.225	503947		

:al Unidentified Counts : 1213911 counts

:ected Peaks: 47 Rejected Peaks: 4 Identified Peaks: 12

.tiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 15190 microVolts

Verification Report

:le :
ı File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm e.run
:hod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
ıple ID : ccv pcb 1ppm e

ıection Date: 8/19/11 7:04 PM Calculation Date: 8/23/11 6:21 PM

:rator : M. Budziak
:kstation:
ıstrument : ECD GC#1 module20
ınnel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

ı Mode : Verification
ık Measurement: Peak Area
.culation Type: External Standard
'el : 5
.erance : 15.0%

;ak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0563	12.7	4.796	0.004	181980	0	
2	A1016-1	1.0000	0.9315	6.8	5.649	0.006	40085	1	
3	A1016-2	1.0000	1.0694	6.9	6.754	-0.022	43296	1	
4	A1016-3	1.0000	1.1253	12.5	7.719	0.003	35846	1	
5	A1016-4	1.0000	1.1083	10.8	7.864	0.005	36104	1	
6	A1016-5	1.0000	1.1437	14.4	8.180	0.005	56744	1	
7	A1260-1	1.0000	1.0448	4.5	10.085	0.003	92676	2	
8	A1260-2	1.0000	1.1013	10.1	11.575	0.000	114252	2	
9	A1260-3	1.0000	1.1367	13.7	12.104	0.002	91357	2	
10	A1260-4	1.0000	1.0728	7.3	12.300	0.001	36923	2	
11	A1260-5	1.0000	1.1002	10.0	14.552	-0.005	93956	2	
12	DCB-surr	0.0500	0.0565	13.1	16.406	-0.002	136430	0	
	Group 0		0.1128			0.002	318410		
	Group 1		5.3782			-0.003	212075		
	Group 2		5.4558			0.001	429164		
	Totals:		10.9468			0.000	959649		

:al Unidentified Counts : 5646512 counts

:ected Peaks: 50 Rejected Peaks: 0 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 94480 microVolts

Verification Report

:le :
1 File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm e.run
:hod File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
mple ID : ccv pcb 1ppm e

jection Date: 8/19/11 7:04 PM Calculation Date: 9/27/11 5:03 PM

erator : M. Budzfak
:kstation:
strument : ECD GC#1 module20
annel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

1 Mode : Verification
ak Measurement: Peak Area
lculation Type: External Standard
vel : 5
lerance : 15.0%

eak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0569	13.7	3.852	0.016	61865	0	
2	A1016-1	1.0000	0.9906	0.9	4.438	0.010	9382	1	
3	A1016-2	1.0000	1.0760	7.6	4.946	0.017	31206	1	
4	A1016-3	1.0000	0.9468	5.3	5.253	0.014	21749	1	
5	A1016-4	1.0000	1.1209	12.1	5.931	0.017	28442	1	
6	A1016-5	1.0000	0.9563	4.4	6.569	0.022	26559	1	
7	A1260-1	1.0000	1.0974	9.7	8.567	0.018	47402	2	
8	A1260-2	1.0000	0.9396	6.0	9.247	0.017	36278	2	
9	A1260-3	1.0000	1.0881	8.8	9.764	0.014	51400	2	
10	A1260-4	1.0000	1.1357	13.6	11.225	0.016	64617	2	
11	A1260-5	1.0000	1.1188	11.9	12.145	0.022	48945	2	
12	DCB-surr	0.0500	0.0540	8.0	13.020	0.023	72497	0	
	Group 0		0.1109			0.039	134362		
	Group 1		5.0906			0.080	117338		
	Group 2		5.3796			0.087	248642		
	Totals:		10.5811			0.206	500342		

tal Unidentified Counts : 1187692 counts

tected Peaks: 57 Rejected Peaks: 11 Identified Peaks: 12

ltiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

seline Offset: 14840 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\icv pcb 1ppm .run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : icv pcb 1ppm

Injection Date: 8/24/11 4:04 AM Calculation Date: 9/9/11 12:40 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0521	4.3	4.775	-0.010	183216	0	
2	A1016-1	1.0000	1.0361	3.6	5.631	-0.009	46963	1	
3	A1016-2	1.0000	1.0260	2.6	6.731	-0.010	45345	1	
4	A1016-3	1.0000	0.9449	5.5	7.692	-0.012	38287	1	
5	A1016-4	1.0000	0.9232	7.7	7.839	-0.009	37368	1	
6	A1016-5	1.0000	1.0075	0.8	8.154	-0.012	57881	1	
7	A1260-1	1.0000	0.9881	1.2	10.057	-0.011	93101	2	
8	A1260-2	1.0000	1.0837	8.4	11.546	-0.014	148113	2	
9	A1260-3	1.0000	1.0497	5.0	12.073	-0.012	113600	2	
10	A1260-4	1.0000	1.0463	4.6	12.269	-0.011	49103	2	
11	A1260-5	1.0000	1.0215	2.1	14.510	-0.017	112925	2	
12	DCB-surr	0.0500	0.0513	2.6	16.345	-0.024	158295	0	
	Group 0		0.1034			-0.034	341511		
	Group 1		4.9377			-0.052	225844		
	Group 2		5.1893			-0.065	516842		
	Totals:		10.2304			-0.151	1084197		

Total Unidentified Counts : 5163515 counts

Detected Peaks: 49 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 67610 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\icv pcb 1ppm .run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : icv pcb 1ppm

Injection Date: 8/24/11 4:04 AM Calculation Date: 9/9/11 11:36 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0505	1.0	3.834	-0.012	64054	0	
2	A1016-1	1.0000	0.9775	2.2	4.433	-0.034	10134	1	
3	A1016-2	1.0000	1.0030	0.3	4.926	-0.014	35742	1	
4	A1016-3	1.0000	1.0074	0.7	5.232	-0.015	27328	1	
5	A1016-4	1.0000	1.0712	7.1	5.908	-0.022	34307	1	
6	A1016-5	1.0000	1.0010	0.1	6.544	-0.019	32884	1	
7	A1260-1	1.0000	0.9967	0.3	8.537	-0.016	48130	2	
8	A1260-2	1.0000	1.0195	2.0	9.217	-0.017	40276	2	
9	A1260-3	1.0000	1.0078	0.8	9.733	-0.017	53479	2	
10	A1260-4	1.0000	1.0190	1.9	11.194	-0.017	70239	2	
11	A1260-5	1.0000	0.9704	3.0	12.113	-0.018	45865	2	
12	DCB-surr	0.0500	0.0509	1.7	12.983	-0.018	67110	0	
	Group 0		0.1014			-0.030	131164		
	Group 1		5.0601			-0.104	140395		
	Group 2		5.0134			-0.085	257989		
	Totals:		10.1749			-0.219	529548		

Total Unidentified Counts : 1159865 counts

Detected Peaks: 45 Rejected Peaks: 3 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 7710 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411b1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411b1

Injection Date: 8/24/11 2:10 PM Calculation Date: 8/24/11 5:11 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0525	4.9	4.778	-0.007	184629	0	
2	A1016-1	1.0000	1.0593	5.9	5.639	-0.001	48025	1	
3	A1016-2	1.0000	1.1249	12.5	6.738	-0.003	49737	1	
4	A1016-3	1.0000	1.0084	0.8	7.700	-0.004	40748	1	
5	A1016-4	1.0000	1.0138	1.4	7.844	-0.004	40941	1	
6	A1016-5	1.0000	1.0373	3.7	8.162	-0.004	59714	1	
7	A1260-1	1.0000	1.0466	4.7	10.064	-0.004	99084	2	
8	A1260-2	1.0000	1.1006	10.1	11.554	-0.007	150574	2	
9	A1260-3	1.0000	1.0633	6.3	12.082	-0.003	115287	2	
10	A1260-4	1.0000	1.0655	6.5	12.276	-0.004	50069	2	
11	A1260-5	1.0000	1.0121	1.2	14.520	-0.007	111804	2	
12	DCB-surr	0.0500	0.0499	0.2	16.358	-0.011	153690	0	
	Group 0		0.1024			-0.018	338319		
	Group 1		5.2437			-0.016	239165		
	Group 2		5.2881			-0.025	526818		
	Totals:		10.6342			-0.059	1104302		

Total Unidentified Counts : 5292014 counts

Detected Peaks: 55 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 70550 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2230 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411b1.run
Method File : d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Sample ID : ccv pcb082411b1

Injection Date: 8/24/11 2:10 PM Calculation Date: 9/9/11 11:39 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0502	0.3	3.842	-0.003	63653	0	
2	A1016-1	1.0000	0.9454	5.5	4.443	-0.024	9780	1	
3	A1016-2	1.0000	1.0015	0.1	4.934	-0.006	35691	1	
4	A1016-3	1.0000	1.0068	0.7	5.241	-0.006	27311	1	
5	A1016-4	1.0000	1.0891	8.9	5.918	-0.012	34878	1	
6	A1016-5	1.0000	0.9979	0.2	6.554	-0.009	32788	1	
7	A1260-1	1.0000	0.9829	1.7	8.546	-0.007	47471	2	
8	A1260-2	1.0000	1.0012	0.1	9.226	-0.009	39550	2	
9	A1260-3	1.0000	0.9929	0.7	9.742	-0.008	52666	2	
10	A1260-4	1.0000	1.0063	0.6	11.202	-0.009	69329	2	
11	A1260-5	1.0000	0.9743	2.6	12.122	-0.009	46050	2	
12	DCB-surr	0.0500	0.0498	0.4	12.993	-0.008	65677	0	
	Group 0		0.1000			-0.011	129330		
	Group 1		5.0407			-0.057	140448		
	Group 2		4.9576			-0.042	255066		
	Totals:		10.0983			-0.110	524844		

Total Unidentified Counts : 1133265 counts

Detected Peaks: 39 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 7160 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 410 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411c1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411c1

Injection Date: 8/24/11 10:35 PM Calculation Date: 8/28/11 12:10 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0539	7.8	4.776	-0.009	190776	0	
2	A1016-1	1.0000	0.8839	11.6	5.633	-0.007	40001	1	
3	A1016-2	1.0000	1.1224	12.2	6.732	-0.009	49627	1	
4	A1016-3	1.0000	0.9916	0.8	7.693	-0.011	40098	1	
5	A1016-4	1.0000	0.9603	4.0	7.838	-0.010	38834	1	
6	A1016-5	1.0000	1.0424	4.2	8.155	-0.012	60028	1	
7	A1260-1	1.0000	1.1078	10.8	10.056	-0.012	105396	2	
8	A1260-2	1.0000	1.0110	1.1	11.545	-0.015	137571	2	
9	A1260-3	1.0000	1.0722	7.2	12.073	-0.012	116412	2	
10	A1260-4	1.0000	1.0834	8.3	12.267	-0.013	50971	2	
11	A1260-5	1.0000	1.1011	10.1	14.507	-0.021	122556	2	
12	DCB-surr	0.0500	0.0538	7.6	16.339	-0.030	166665	0	
	Group 0		0.1077			-0.039	357441		
	Group 1		5.0006			-0.049	228588		
	Group 2		5.3755			-0.073	532906		
	Totals:		10.4838			-0.161	1118935		

Total Unidentified Counts : 5285052 counts

Detected Peaks: 46 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 73020 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2120 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411c1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411c1

Injection Date: 8/24/11 10:35 PM Calculation Date: 11/14/11 3:45 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : A = A Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0497	0.5	3.836	-0.010	63123	0	
2	A1016-1	1.0000	0.9471	5.3	4.437	-0.030	9799	1	
3	A1016-2	1.0000	0.9950	0.5	4.927	-0.013	35466	1	
4	A1016-3	1.0000	1.0045	0.5	5.234	-0.013	27253	1	
5	A1016-4	1.0000	0.9628	3.7	5.910	-0.020	30849	1	
6	A1016-5	1.0000	0.9984	0.2	6.547	-0.016	32803	1	
7	A1260-1	1.0000	0.9826	1.7	8.538	-0.015	47458	2	
8	A1260-2	1.0000	0.9977	0.2	9.219	-0.016	39410	2	
9	A1260-3	1.0000	0.9866	1.3	9.735	-0.015	52326	2	
10	A1260-4	1.0000	0.9797	2.0	11.194	-0.017	67415	2	
11	A1260-5	1.0000	0.9859	1.4	12.113	-0.018	46614	2	
12	DCB-surr	0.0500	0.0512	2.4	12.981	-0.020	67568	0	
	Group 0		0.1009			-0.030	130691		
	Group 1		4.9078			-0.092	136170		
	Group 2		4.9325			-0.081	253223		
	Totals:		9.9412			-0.203	520084		

Total Unidentified Counts : 1139004 counts

Detected Peaks: 39 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 6840 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 440 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411d1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411d1

Injection Date: 8/25/11 3:50 AM Calculation Date: 8/28/11 12:10 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0555	11.0	4.775	-0.010	197760	0	
2	A1016-1	1.0000	0.9193	8.1	5.631	-0.009	41619	1	
3	A1016-2	1.0000	1.1010	10.1	6.731	-0.010	48677	1	
4	A1016-3	1.0000	1.0081	0.8	7.692	-0.012	40736	1	
5	A1016-4	1.0000	0.9743	2.6	7.837	-0.011	39385	1	
6	A1016-5	1.0000	1.0493	4.9	8.153	-0.013	60457	1	
7	A1260-1	1.0000	1.0866	8.7	10.056	-0.012	103201	2	
8	A1260-2	1.0000	0.9622	3.8	11.544	-0.016	130537	2	
9	A1260-3	1.0000	1.0325	3.3	12.071	-0.014	111461	2	
10	A1260-4	1.0000	1.0465	4.7	12.265	-0.015	49116	2	
11	A1260-5	1.0000	1.0931	9.3	14.505	-0.022	121580	2	
12	DCB-surr	0.0500	0.0546	9.3	16.340	-0.029	169578	0	
	Group 0		0.1101			-0.039	367338		
	Group 1		5.0520			-0.055	230874		
	Group 2		5.2209			-0.079	515895		
	Totals:		10.3830			-0.173	1114107		

Total Unidentified Counts : 5092625 counts

Detected Peaks: 47 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 78760 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2230 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0824-pcb\ccv pcb082411d1.run
Method File : d:\star\data\module 20ecd\08-2011\0824-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082411d1

Injection Date: 8/25/11 3:50 AM Calculation Date: 11/14/11 3:45 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A
Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0506	1.2	3.835	-0.011	64195	0	
2	A1016-1	1.0000	1.0468	4.7	4.432	-0.035	10902	1	
3	A1016-2	1.0000	1.0124	1.2	4.925	-0.015	36064	1	
4	A1016-3	1.0000	1.0281	2.8	5.232	-0.015	27869	1	
5	A1016-4	1.0000	1.0104	1.0	5.908	-0.022	32368	1	
6	A1016-5	1.0000	1.0084	0.8	6.543	-0.020	33113	1	
7	A1260-1	1.0000	0.9838	1.6	8.536	-0.017	47512	2	
8	A1260-2	1.0000	0.9702	3.0	9.216	-0.019	38320	2	
9	A1260-3	1.0000	0.9712	2.9	9.733	-0.017	51488	2	
10	A1260-4	1.0000	0.9608	3.9	11.192	-0.019	66065	2	
11	A1260-5	1.0000	0.9646	3.5	12.110	-0.021	45582	2	
12	DCB-surr	0.0500	0.0505	1.0	12.979	-0.022	66666	0	
	Group 0		0.1011			-0.033	130861		
	Group 1		5.1061			-0.107	140316		
	Group 2		4.8506			-0.093	248967		
	Totals:		10.0578			-0.233	520144		

Total Unidentified Counts : 1135211 counts

Detected Peaks: 41 Rejected Peaks: 1 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 7350 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 400 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Confirmation Column - Results Summary

08-24-11-PCB-smp-rpd

Sample Name	Data File	Mode	Inj. #	Peak Names ——> TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	RPD
1108425-001b	2011\0824-pcb\1108425-001b.RPA	A	1	0.0497	0.0497	0.1164	0.0544	0.1193	0.1491	0.1757	0.1230	12.39%
1108425-002b	2011\0824-pcb\1108425-002b.RPA	A	1	0.0439	0.0655	0.0102	0.0201	0.0557	0.0912	0.0734	0.0501	0.67%
1108425-003b	2011\0824-pcb\1108425-003b.RPA	A	1	0.0540	0.0553	0.0248	0.0133	0.0422	0.0433	0.0591	0.0365	2.68%
1108425-006b	2011\0824-pcb\1108425-006b.RPA	A	1	0.0447	0.0477	0.0491	0.0130	0.0599	0.0529	0.0447	0.0439	10.35%
1108425-007b1-5	1\0824-pcb\1108425-007b1-5.RPA	A	1	0.0089	0.0091	0.5088	0.5067	0.4113	0.4058	0.3898	0.4445	9.55%
1108425-008b	2011\0824-pcb\1108425-008b.RPA	A	1	0.0365	0.0366	0.7457	0.7709	0.7192	0.7609	0.8108	0.7615	0.54%
1108425-010b	2011\0824-pcb\1108425-010b.RPA	A	1	0.0504	0.0545	0.0431	0.1240	0.0782	0.1341	0.1300	0.1019	13.49%
1108425-007bms1-5	\0824-pcb\1108425-011a1-10.RPA	A	1	0.0041	0.0044	0.9964	0.9482	0.8846	0.8228	0.8694	0.9043	8.21%
1108425-007bmsd1-5	\0824-pcb\1108425-012a1-50.RPA	A	1	0.0006	0.0010	0.9802	1.7474	1.6940	0.8720	0.8199	1.2227	3.60%
1108425-013b	2011\0824-pcb\1108425-013b.RPA	A	1	0.0454	0.0344	0.9509	0.9770	0.7702	0.6539	0.6071	0.7919	3.42%
1108425-014b	2011\0824-pcb\1108425-014b.RPA	A	1	0.0457	0.0515	0.0900	0.1606	0.1282	0.4301	0.4851	0.2588	18.27%
1108425-016b	2011\0824-pcb\1108425-016b.RPA	A	1	0.0478	0.0425	0.3071	0.3766	0.3362	0.4822	0.4353	0.3875	9.11%
1108425-017b	2011\0824-pcb\1108425-017b.RPA	A	1	0.0460	0.0452	0.2718	0.3540	0.2881	0.3920	0.3779	0.3368	2.73%
1108425-018b	2011\0824-pcb\1108425-018b.RPA	A	1	0.0503	0.0517	1.2771	1.5481	1.3816	1.5016	1.5664	1.4550	4.34%
1108425-019b	2011\0824-pcb\1108425-019b.RPA	A	1	0.0521	0.0382	0.5065	0.5638	0.4485	0.4724	0.3998	0.4782	0.71%
1108447-002b EU96	2011\0824-pcb\1108447-002b.RPA	A	1	0.0351	0.0362	0.0055	0.0125	0.0192	0.0579	0.0373	0.0265	10.29%
1108201-003a	2011\0824-pcb\1108201-003a.RPA	A	1	0.0403	0.0305	0.9568	0.9970	0.7464	1.0763	0.8492	0.9251	13.29%
1108201-008a	2011\0824-pcb\1108201-008a.RPA	A	1	0.0451	0.0404	0.0965	0.1606	0.0828	0.1737	0.0870	0.1201	2.76%
1108201-009a	2011\0824-pcb\1108201-009a.RPA	A	1	0.0404	0.0369	0.0875	0.1354	0.0675	0.1727	0.0612	0.1049	6.13%
1108201-010a	2011\0824-pcb\1108201-010a.RPA	A	1	0.0401	0.0545	0.9456	1.1951	0.7921	1.0576	1.2061	1.0393	4.47%
1108201-012a1-50	\0824-pcb\1108201-012a1-50.RPA	A	1	0.0006	0.0013	0.3666	0.3664	0.2744	0.3919	0.4178	0.3634	6.04%
1108201-001a1-10	\0824-pcb\1108201-001a1-10.RPA	A	1	0.0032	0.0028	0.4782	0.4844	0.3984	0.5409	0.5954	0.4995	3.09%
1108201-002a1-5	1\0824-pcb\1108201-002a1-5.RPA	A	1	0.0080	0.0075	0.8577	0.8530	0.7033	0.9007	0.9825	0.8594	2.08%
1108201-004a1-4	1\0824-pcb\1108201-004a1-4.RPA	A	1	0.0085	0.0077	0.5565	0.5993	0.4661	0.7011	0.7535	0.6153	3.52%
1108201-005a1-5	1\0824-pcb\1108201-005a1-5.RPA	A	1	0.0086	0.0079	0.3789	0.4284	0.3389	0.6251	0.5636	0.4670	15.52%
1108201-011a1-50	\0824-pcb\1108201-011a1-50.RPA	A	1	0.0006	0.0013	0.5433	0.6136	0.5060	0.5955	0.5926	0.5702	5.15%
1108201-006a1-5	1\0824-pcb\1108201-006a1-5.RPA	A	1	0.0085	0.0058	0.3932	0.4469	0.3622	0.5004	0.3542	0.4114	2.99%
1108201-007a1-5	1\0824-pcb\1108201-007a1-5.RPA	A	1	0.0078	0.0043	0.3732	0.4390	0.2884	0.4231	0.3185	0.3685	0.03%
1108201-013a1-20	\0824-pcb\1108201-013a1-20.RPA	A	1	0.0023	0.0022	0.6756	0.6541	0.5966	0.6651	0.7302	0.6643	7.24%
1108201-014a1-20	\0824-pcb\1108201-014a1-20.RPA	A	1	0.0021	0.0026	0.6836	0.6710	0.6008	0.6712	0.6909	0.6635	4.65%

Primary Column - Results Summary

Sample Name	Data File	Mode	Inj. #	Peak Names ——> TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	RPD
1108425-001b	2011\0824-pcb\1108425-001b.RPB	A	1	0.0498	0.0518	0.1575	0.1196	0.1289	0.1325	0.1575	0.1392	
1108425-002b	2011\0824-pcb\1108425-002b.RPB	A	1	0.0443	0.0705	0.0180	0.0572	0.0530	0.0627	0.0581	0.0498	
1108425-003b	2011\0824-pcb\1108425-003b.RPB	A	1	0.0542	0.0580	0.0209	0.0478	0.0373	0.0542	0.0274	0.0375	
1108425-006b	2011\0824-pcb\1108425-006b.RPB	A	1	0.0450	0.0514	0.0097	0.0607	0.0423	0.0603	0.0249	0.0396	
1108425-007b1-5	1\0824-pcb\1108425-007b1-5.RPB	A	1	0.0097	0.0087	0.5230	0.4265	0.4641	0.5880	0.4435	0.4891	
1108425-008b	2011\0824-pcb\1108425-008b.RPB	A	1	0.0372	0.0390	0.5757	0.8180	0.7719	0.8052	0.8572	0.7656	
1108425-010b	2011\0824-pcb\1108425-010b.RPB	A	1	0.0511	0.0578	0.0372	0.1093	0.0712	0.0899	0.1374	0.0890	
1108425-007bms1-5	\0824-pcb\1108425-011a1-10.RPB	A	1	0.0037	0.0042	0.8755	1.0661	0.9558	1.0695	0.9417	0.9817	
1108425-007bmsd1-5	\0824-pcb\1108425-012a1-50.RPB	A	1	0.0007	0.0010	0.9156	1.9442	0.8943	1.2004	0.9430	1.1795	
1108425-013b	2011\0824-pcb\1108425-013b.RPB	A	1	0.0469	0.0363	0.8108	0.8273	0.7141	0.7907	0.6834	0.7653	
1108425-014b	2011\0824-pcb\1108425-014b.RPB	A	1	0.0463	0.0571	0.1011	0.1528	0.1233	0.1808	0.5195	0.2155	
1108425-016b	2011\0824-pcb\1108425-016b.RPB	A	1	0.0485	0.0451	0.2423	0.3436	0.3445	0.3655	0.4726	0.3537	
1108425-017b	2011\0824-pcb\1108425-017b.RPB	A	1	0.0467	0.0485	0.2568	0.3022	0.3208	0.3458	0.4129	0.3277	
1108425-018b	2011\0824-pcb\1108425-018b.RPB	A	1	0.0517	0.0567	1.0920	1.6251	1.4943	1.6094	1.7765	1.5195	
1108425-019b	2011\0824-pcb\1108425-019b.RPB	A	1	0.0539	0.0408	0.4493	0.4788	0.4445	0.5478	0.4536	0.4748	
1108447-002b	2011\0824-pcb\1108447-002b.RPB	A	1	0.0368	0.0385	0.0080	0.0359	0.0126	0.0469	0.0433	0.0293	
1108201-003a	2011\0824-pcb\1108201-003a.RPB	A	1	0.0398	0.0331	1.0021	1.0988	1.0680	0.8631	1.2520	1.0568	
1108201-008a	2011\0824-pcb\1108201-008a.RPB	A	1	0.0446	0.0677	0.0436	0.0863	0.1905	0.0692	0.1947	0.1169	
1108201-009a	2011\0824-pcb\1108201-009a.RPB	A	1	0.0417	0.0587	0.0239	0.1116	0.1522	0.0471	0.2227	0.1115	
1108201-010a	2011\0824-pcb\1108201-010a.RPB	A	1	0.0416	0.0659	0.9463	1.1225	1.1297	0.9471	1.2882	1.0868	
1108201-012a1-50	\0824-pcb\1108201-012a1-50.RPB	A	1	0.0000	0.0010	0.4060	0.3684	0.4245	0.2877	0.4437	0.3861	
1108201-001a1-10	\0824-pcb\1108201-001a1-10.RPB	A	1	0.0032	0.0041	0.4283	0.4401	0.4769	0.4754	0.6007	0.4843	
1108201-002a1-5	1\0824-pcb\1108201-002a1-5.RPB	A	1	0.0089	0.0084	0.8137	0.8501	0.8545	0.8125	1.0568	0.8775	
1108201-004a1-4	1\0824-pcb\1108201-004a1-4.RPB	A	1	0.0086	0.0099	0.5520	0.5037	0.6809	0.6105	0.8396	0.6373	
1108201-005a1-5	1\0824-pcb\1108201-005a1-5.RPB	A	1	0.0094	0.0119	0.4479	0.4555	0.4883	0.4579	0.8783	0.5456	
1108201-011a1-50	\0824-pcb\1108201-011a1-50.RPB	A	1	0.0002	0.0012	0.4750	0.4885	0.5407	0.5532	0.6506	0.5416	
1108201-006a1-5	1\0824-pcb\1108201-006a1-5.RPB	A	1	0.0092	0.0074	0.3689	0.4350	0.4375	0.3645	0.5137	0.4239	
1108201-007a1-5	1\0824-pcb\1108201-007a1-5.RPB	A	1	0.0085	0.0064	0.3364	0.3653	0.3508	0.3333	0.4558	0.3683	
1108201-013a1-20	\0824-pcb\1108201-013a1-20.RPB	A	1	0.0021	0.0025	0.5847	0.5711	0.6009	0.5907	0.7424	0.6179	
1108201-014a1-20	\0824-pcb\1108201-014a1-20.RPB	A	1	0.0018	0.0024	0.6081	0.6000	0.6126	0.6021	0.7440	0.6334	

	Confirmation Column - Results Summary											
Sample	Data		Inj.	Peak Names ——>		08-18-11-PCB-rpd1108447						
Name	File	Mode	#	TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	RPD
1108447-006a EU23	08447-006a.RPA	A	1	0.0544	0.0481	0.0320	0.0414	0.0461	0.0770	0.0795	0.0552	28.95%
1108447-007a EU45	08447-007a.RPA	A	1	0.0457	0.0405	0.1981	0.3290	0.2441	0.6917	0.4207	0.3767	27.59%
1108447-009a EU48	08447-009a.RPA	A	1	0.0468	0.0437	0.0351	0.0319	0.0737	0.0682	0.0578	0.0533	16.70%
1108447-011a1-10 EU43	47-011a1-10.RPA	A	1	0.0043	0.0034	0.4178	0.4124	0.3818	0.3458	0.3168	0.3749	10.19%
	Primary Column - Results Summary											
Sample	Data		Inj.	Peak Names ——>								
Name	File	Mode	#	TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	Total	
1108447-006a	08447-006a.RPB	A	1	0.0521	0.0537	0.0101	0.0490	0.0406	0.0483	0.0581	0.0412	
1108447-007a	08447-007a.RPB	A	1	0.0437	0.0517	0.0838	0.2428	0.2433	0.3676	0.4894	0.2854	
1108447-009a	08447-009a.RPB	A	1	0.0454	0.0483	0.0283	0.0607	0.0438	0.0517	0.0411	0.0451	
1108447-011a1-10	47-011a1-10.RPB	A	1	0.0042	0.0046	0.3239	0.3922	0.4727	0.4961	0.3910	0.4152	

TETRA TECH, INC **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4974W

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108447
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 14/ Soil: PAH/PCB

IOA-SS-DUP03-081011[1]	IOA-SS-EU23-0002	IOA-SS-EU33-0002
IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002
IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002
IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU47-0002
IOA-SS-EU48-0002	IOA-SS-EU49-0002	

[1]Field duplicate of IOA-SS-EU46-0002

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

PAH

The project goals with respect to accuracy were met for the polynuclear aromatic hydrocarbon (PAH) data set with the following exceptions. All PAH compounds in all soil samples were qualified as estimated due to the exceeded extraction holding time criterion. Benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were qualified as estimated in samples IOA-SS-EU44-0002, IOA-SS-EU45-0002, IOA-SS-EU36-0002, IOA-SS-EU48-0002, and IOA-SS-EU23-0002 due to the poor internal standard area response. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values which may have a minor impact on data usability.

Benzo(g,h,i)perylene and benzo(k)fluoranthene were qualified as estimated in samples IOA-SS-EU44-0002, IOA-SS-EU45-0002, IOA-SS-EU36-0002, IOA-SS-EU48-0002, and IOA-SS-EU23-0002 due to the poor internal standard area response. However, the data usability is not impacted since the sample

results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project goals with respect to sensitivity were met for the PAH data set with the following exceptions. Benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported as non-detected (U) at the limit of detection (LOD) in select samples. The LODs for these compounds exceeded the project screening limits for select samples; therefore, the data usability may be impacted with regards to sensitivity.

The project goals with respect to precision and laboratory data completeness were met for the PAH data set. Data usability was not impacted with regards to precision and laboratory data completeness.

PCB

The project goals with respect to accuracy, precision, and laboratory data completeness were met for the polychlorinated biphenyls (PCB) data set. Data usability was not impacted with regards to accuracy, precision, and laboratory data completeness.

Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and/or 1260 were reported as non-detected (U) at the limit of detection (LOD) in all samples. The LODs met project screening limits; thus, project sensitivity goals were met for the PCB data set. Data usability was not impacted with regards to sensitivity.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **P.CALL** **DATE:** **December 9, 2011**

FROM: **MEGAN CARSON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION- SELECT METALS**
CTO WE11, NAS SOUTH WEYMOUTH
SAMPLE DELIVERY GROUP (SDG) 1108447

SAMPLES: 14/Soil/

IOA-SS-DUP03-081011	IOA-SS-EU23-0002
IOA-SS-EU33-0002	IOA-SS-EU34-0002
IOA-SS-EU35-0002	IOA-SS-EU36-0002
IOA-SS-EU42-0002	IOA-SS-EU43-0002
IOA-SS-EU44-0002	IOA-SS-EU45-0002
IOA-SS-EU46-0002	IOA-SS-EU47-0002
IOA-SS-EU48-0002	IOA-SS-EU49-0002

OVERVIEW

The sample set for CTO WE11, Cutler, SDG 1108447, consists of fourteen (14) soil environmental samples. This SDG contained one field duplicate pair: IOA-SS-DUP03-081011/IOA-SS-EU43-0002.

The samples were analyzed for select metals. The samples were collected by Tetra Tech on August 10th, 2011 and were analyzed and reported by Katahdin Analytical Services. Metals analyses were conducted by method 6020. The mercury analyses were conducted by method 7470A and 7471. A Tier 2 data validation was performed on the referenced samples. The data contained in this SDG were validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibration Verification Results
• Laboratory Method / Preparation Blank Analyses
* • ICP Interference Results
* • Laboratory Duplicate Results
* • Laboratory Control Standard Results
• Field Duplicate Imprecision
* • Matrix Spike Recoveries
* • ICP/MS Serial Dilution
* • Detection Limits
* • Analyte Quantitation

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. The attached Table summarizes the validation qualifications which are based on the following information:

METALS:

The following analytes were detected in the calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Antimony	0.122 ug/L	30.5 ug/kg
Beryllium	0.057 ug/L	14.25 ug/kg
Cadmium	0.036 ug/L	9.0 ug/kg
Cobalt	0.048 ug/L	12 ug/kg
Copper	0.045 ug/L	11.25 ug/kg
Iron	3.86 ug/L	193 ug/kg
Lead	0.031 ug/L	7.75 ug/kg
Nickel	0.039 ug/L	9.7 ug/kg
Potassium	10.419 ug/L	2604.75
Thallium	0.033 ug/L	8.25 ug/kg
Vanadium	0.103 ug/L	25.7 ug/kg

Action levels of 5X the maximum contaminant concentration for were established to evaluate blank contamination. Dilution factors, percent solids, and sample aliquots were taken into consideration during the application of all action levels. Positive results less than the blank action level were qualified as non-detected (U).

Field duplicate pair IOA-SS-DUP03-081011/IOA-SS-EU43-0002 had a relative percent difference > 50% for copper, manganese, and potassium. All samples were affected. Positive results were qualified as estimated (J).

Notes:

The EDD included two analyses per sample and the validator had to determine which analyses matched the form 1s. The validator had correct dilution factors, analysis dates and times to match the form 1s.

EXECUTIVE SUMMARY

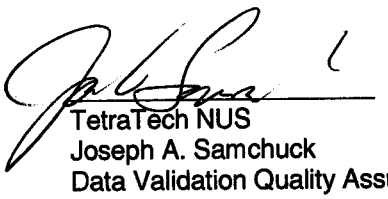
Laboratory Performance Issues: Calibration blanks resulted in the qualification of sample results.

Other Factors Affecting Data Quality: Field duplicate non-compliances for copper, manganese, and potassium resulted in the qualification of sample results.

The data for these analyses were reviewed with reference to the Region I USEPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part IV (11/08), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April, 2009). The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech NUS
Megan Carson
Chemist 1/ Data Validator



TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Regional Worksheets
Appendix D – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP03-081011			IOA-SS-DUP03-081011DL			IOA-SS-EU23-0002			IOA-SS-EU23-0002DL		
SDG: 1108447	LAB_ID	1108447-004C			1108447-004C			1108447-006C			1108447-006C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.6			92.6			85.1			85.1		
	DUP_OF	IOA-SS-EU46-0002			IOA-SS-EU46-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10000000						6800000					
ANTIMONY					160	U	A				220	U	A
ARSENIC					1300						2200		
BARIUM					16000						19000		
BERYLLIUM					280	J	P				380		
CADMIUM					220						440		
CALCIUM		900000						1500000					
CHROMIUM					9600						7500		
COBALT					2700						3400		
COPPER					4800	J	G				6600	J	G
IRON		11000000						12000000					
LEAD					24000						26000		
MAGNESIUM		1900000						1700000					
MANGANESE		130000	J	G				150000	J	G			
MERCURY		32						23	J	P			
NICKEL					7100						8700		
POTASSIUM		310000	J	G				310000	J	G			
SELENIUM					300	J	P				290	J	P
SILVER					98	U					60	J	P
SODIUM		59000	J	P				29000	J	P			
THALLIUM					74	U					110	U	A
VANADIUM					16000						20000		
ZINC					37000						40000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU33-0002			IOA-SS-EU33-0002DL			IOA-SS-EU34-0002			IOA-SS-EU34-0002DL		
SDG: 1108447	LAB_ID	1108447-014C			1108447-014C			1108447-013C			1108447-013C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.9			92.9			84.1			84.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7100000						7600000					
ANTIMONY					100	U	A				97	U	A
ARSENIC					1700						1600		
BARIUM					16000						22000		
BERYLLIUM					400						530		
CADMIUM					180						210		
CALCIUM		1300000						1600000					
CHROMIUM					7000						8200		
COBALT					4300						5600		
COPPER					7800	J	G				6100	J	G
IRON		15000000						22000000					
LEAD					10000						9900		
MAGNESIUM		2500000						2100000					
MANGANESE		240000	J	G				380000	J	G			
MERCURY		4	J	P				3	J	P			
NICKEL					7100						7700		
POTASSIUM		480000	J	G				310000	J	G			
SELENIUM					350	J	P				240	J	P
SILVER					78	U					100	U	
SODIUM		54000	J	P				47000	J	P			
THALLIUM					66	U					76	U	
VANADIUM					19000						16000		
ZINC					38000						33000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU35-0002			IOA-SS-EU35-0002DL			IOA-SS-EU36-0002			IOA-SS-EU36-0002DL		
SDG: 1108447	LAB_ID	1108447-005C			1108447-005C			1108447-003C			1108447-003C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	93.3			93.3			85.6			85.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		6500000						9400000					
ANTIMONY					85	U	A				160	U	A
ARSENIC					1200						2300		
BARIUM					12000						22000		
BERYLLIUM					310	J	P				450		
CADMIUM					160	J	P				330		
CALCIUM		1200000						1200000					
CHROMIUM					9000						15000		
COBALT					3600						4900		
COPPER					7900	J	G				13000	J	G
IRON		12000000						18000000					
LEAD					8200						32000		
MAGNESIUM		2300000						3000000					
MANGANESE		200000	J	G				350000	J	G			
MERCURY		2	J	P				22	J	P			
NICKEL					7700						9900		
POTASSIUM		320000	J	G				440000	J	G			
SELENIUM					630	U					650	U	
SILVER					85	U					100	U	
SODIUM		49000	J	P				58000	J	P			
THALLIUM					84	U					87	U	
VANADIUM					11000						19000		
ZINC					33000						44000		

PROJ_NO: 02073 SDG: 1108447 FRACTION: M MEDIA: SOIL	NSAMPLE	IOA-SS-EU42-0002			IOA-SS-EU42-0002DL			IOA-SS-EU43-0002			IOA-SS-EU43-0002DL		
	LAB_ID	1108447-012C			1108447-012C			1108447-011C			1108447-011C		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	82.8			82.8			95.6			95.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		11000000						7600000					
ANTIMONY					120	U	A				210		
ARSENIC					2300						2100		
BARIUM					21000						22000		
BERYLLIUM					390	J	P				430		
CADMIUM					210						360		
CALCIUM		610000						1400000					
CHROMIUM					9300						11000		
COBALT					3700						4000		
COPPER					6900	J	G				10000	J	G
IRON		19000000						16000000					
LEAD					16000						35000		
MAGNESIUM		2000000						2200000					
MANGANESE		240000	J	G				310000	J	G			
MERCURY		17	J	P				12	J	P			
NICKEL					7200						7700		
POTASSIUM		380000	J	G				620000	J	G			
SELENIUM					420	J	P				310	J	P
SILVER					95	J	P				79	U	
SODIUM		45000	J	P				77000					
THALLIUM					100	U					66	U	
VANADIUM					20000						21000		
ZINC					38000						44000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU44-0002			IOA-SS-EU44-0002DL			IOA-SS-EU45-0002			IOA-SS-EU45-0002DL		
SDG: 1108447	LAB_ID	1108447-010C			1108447-010C			1108447-007C			1108447-007C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.3			87.3			78.1			78.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		6800000						8000000					
ANTIMONY					240	U	A				550		
ARSENIC					1700						7200		
BARIUM					19000						35000		
BERYLLIUM					580						360		
CADMIUM					340						580		
CALCIUM		1000000						1000000					
CHROMIUM					7900						14000		
COBALT					4900						3800		
COPPER					11000	J	G				25000	J	G
IRON		14000000						14000000					
LEAD					20000						320000		
MAGNESIUM		2400000						1900000					
MANGANESE		390000	J	G				220000	J	G			
MERCURY		7	J	P				60					
NICKEL					8800						8900		
POTASSIUM		400000	J	G				340000	J	G			
SELENIUM					300	J	P				380	J	P
SILVER					80	U					76	J	P
SODIUM		58000	J	P				43000	J	P			
THALLIUM					77	U					92	U	A
VANADIUM					15000						25000		
ZINC					58000						81000		

PROJ_NO: 02073 SDG: 1108447 FRACTION: M MEDIA: SOIL	NSAMPLE	IOA-SS-EU46-0002			IOA-SS-EU46-0002DL			IOA-SS-EU47-0002			IOA-SS-EU47-0002DL		
	LAB_ID	1108447-002C			1108447-002C			1108447-001C			1108447-001C		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.7			91.7			87.7			87.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		10000000						7900000					
ANTIMONY					160	U	A				70	U	A
ARSENIC					1400						1300		
BARIUM					17000						11000		
BERYLLIUM					530						270	J	P
CADMIUM					250						180		
CALCIUM		830000						1700000					
CHROMIUM					11000						16000		
COBALT					3100						6300		
COPPER					5700	J	G				7900	J	G
IRON		13000000						11000000					
LEAD					33000						10000		
MAGNESIUM		2100000						4900000					
MANGANESE		160000	J	G				220000	J	G			
MERCURY		44						2	J	P			
NICKEL					7600						14000		
POTASSIUM		320000	J	G				300000	J	G			
SELENIUM					380	J	P				590	U	
SILVER					94	U					91	U	
SODIUM		45000	J	P				85000					
THALLIUM					77	U					79	U	
VANADIUM					17000						17000		
ZINC					40000						40000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU48-0002			IOA-SS-EU48-0002DL			IOA-SS-EU49-0002			IOA-SS-EU49-0002DL		
SDG: 1108447	LAB_ID	1108447-009C			1108447-009C			1108447-008C			1108447-008C		
FRACTION: M	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.0			90.0			89.7			89.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		8500000						6400000					
ANTIMONY					110	U	A				120	U	A
ARSENIC					3400						36000		
BARIUM					21000						26000		
BERYLLIUM					450						560		
CADMIUM					190						200		
CALCIUM		1400000						1200000					
CHROMIUM					9900						7900		
COBALT					5200						4000		
COPPER					8700	J	G				6000	J	G
IRON		20000000						45000000					
LEAD					8100						16000		
MAGNESIUM		2800000						1700000					
MANGANESE		310000	J	G				280000	J	G			
MERCURY		1	J	P				2	J	P			
NICKEL					9300						6100		
POTASSIUM		420000	J	G				330000	J	G			
SELENIUM					600	U					640	U	
SILVER					77	U					75	U	
SODIUM		80000	J	P				120000					
THALLIUM					81	U					85	U	
VANADIUM					15000						18000		
ZINC					36000						29000		

PROJ_NO: 02073 SDG: 1108447 FRACTION: MISC MEDIA: SOIL	NSAMPLE	IOA-SS-DUP03-081011			IOA-SS-EU23-0002			IOA-SS-EU33-0002			IOA-SS-EU34-0002		
	LAB_ID	1108447-004C			1108447-006C			1108447-014C			1108447-013C		
	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	IOA-SS-EU46-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		7			15			7			16		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU35-0002			IOA-SS-EU36-0002			IOA-SS-EU42-0002			IOA-SS-EU43-0002		
SDG: 1108447	LAB_ID	1108447-005C			1108447-003C			1108447-012C			1108447-011C		
FRACTION: MISC	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		6			14			17			4		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU44-0002			IOA-SS-EU45-0002			IOA-SS-EU46-0002			IOA-SS-EU47-0002		
SDG: 1108447	LAB_ID	1108447-010C			1108447-007C			1108447-002C			1108447-001C		
FRACTION: MISC	SAMP_DATE	8/10/2011			8/10/2011			8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		13			22			8			12		

PROJ_NO: 02073 SDG: 1108447 FRACTION: MISC MEDIA: SOIL	NSAMPLE	IOA-SS-EU48-0002			IOA-SS-EU49-0002		
	LAB_ID	1108447-009C			1108447-008C		
	SAMP_DATE	8/10/2011			8/10/2011		
	QC_TYPE	NM			NM		
	UNITS	%			%		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		10			10		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-004 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP03-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 4:41:42 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 4:41:42 AM
Surr: Decachlorobiphenyl	104	60-125		%REC	1	8/19/2011 4:41:42 AM
Surr: Tetrachloro-m-xylene	91.6	60-125		%REC	1	8/19/2011 4:41:42 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	10,000,000	150,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Arsenic	1,300	220		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Barium	16,000	3,700		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Beryllium	280	300	J	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Cadmium	220	150		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Calcium	900,000	150,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Chromium	9,600	1,500		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Cobalt	2,700	740		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Copper	4,800	740		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Iron	11,000,000	590,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Lead	24,000	150		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Magnesium	1,900,000	74,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Manganese	130,000	15,000		µg/Kg-dry	400	9/7/2011 12:13:54 PM
Nickel	7,100	1,500		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Potassium	310,000	74,000		µg/Kg-dry	20	9/7/2011 11:27:23 AM
Selenium	300	740	J	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Sodium	59,000	74,000	J	µg/Kg-dry	20	9/7/2011 11:27:23 AM
Thallium	ND	300	U	µg/Kg-dry	20	9/7/2011 9:52:57 AM
Vanadium	16,000	590		µg/Kg-dry	20	9/7/2011 9:52:57 AM
Zinc	37,000	7,400		µg/Kg-dry	20	9/7/2011 9:52:57 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-004 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP03-081011

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	160	250	J	µg/Kg-dry	10	9/8/2011 6:03:11 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:03:11 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	32	25		µg/Kg-dry	1	8/24/2011 1:42:09 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Anthracene	8.6	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(a)anthracene	31	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(a)pyrene	38	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(b)fluoranthene	56	170	JmH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(g,h,i)perylene	24	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Benzo(k)fluoranthene	24	170	JmH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Chrysene	44	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Fluoranthene	58	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Phenanthrene	23	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Pyrene	57	170	JH	µg/Kg-dry	1	10/3/2011 2:59:00 PM
Surr: 2-Fluorobiphenyl	88.1	45-105	H	%REC	1	10/3/2011 2:59:00 PM
Surr: Nitrobenzene-d5	84.4	35-100	H	%REC	1	10/3/2011 2:59:00 PM
Surr: Terphenyl-d14	99.1	30-125	H	%REC	1	10/3/2011 2:59:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.4	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU23-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Aroclor 1260	8.0	38	J	µg/Kg-dry	1	8/19/2011 6:18:23 AM
Total PCBs	8.0	38		µg/Kg-dry	1	8/19/2011 6:18:23 AM
Surr: Decachlorobiphenyl	107	60-125		%REC	1	8/19/2011 6:18:23 AM
Surr: Tetrachloro-m-xylene	104	60-125		%REC	1	8/19/2011 6:18:23 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,800,000	160,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Arsenic	2,200	230		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Barium	19,000	3,900		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Beryllium	380	310		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Cadmium	440	160		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Calcium	1,500,000	160,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Chromium	7,500	1,600		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Cobalt	3,400	780		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Copper	6,600	780		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Iron	12,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Lead	26,000	160		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Magnesium	1,700,000	78,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Manganese	150,000	16,000		µg/Kg-dry	400	9/7/2011 12:34:15 PM
Nickel	8,700	1,600		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Potassium	310,000	78,000		µg/Kg-dry	20	9/7/2011 11:38:35 AM
Selenium	290	780	J	µg/Kg-dry	20	9/7/2011 10:13:36 AM
Sodium	29,000	78,000	J	µg/Kg-dry	20	9/7/2011 11:38:35 AM
Thallium	110	310	J	µg/Kg-dry	20	9/7/2011 10:13:36 AM
Vanadium	20,000	620		µg/Kg-dry	20	9/7/2011 10:13:36 AM
Zinc	40,000	7,800		µg/Kg-dry	20	9/7/2011 10:13:36 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU23-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	220	150		µg/Kg-dry	10	9/8/2011 6:03:58 PM
Silver	60	90	J	µg/Kg-dry	10	9/8/2011 6:03:58 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	23	33	J	µg/Kg-dry	1	8/24/2011 1:43:38 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Acenaphthene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Acenaphthylene	15	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Anthracene	35	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(a)anthracene	110	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(a)pyrene	120	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(b)fluoranthene	220	280	JmH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(g,h,i)perylene	59	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Benzo(k)fluoranthene	87	280	JmH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Chrysene	140	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Dibenzo (a,h) anthracene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Fluoranthene	280	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Fluorene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Indeno(1,2,3-cd)pyrene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Naphthalene	ND	280	UH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Phenanthrene	170	280	JH	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Pyrene	340	280	H	µg/Kg-dry	1	10/4/2011 9:04:00 PM
Surr: 2-Fluorobiphenyl	89.3	45-105	H	%REC	1	10/4/2011 9:04:00 PM
Surr: Nitrobenzene-d5	83.3	35-100	H	%REC	1	10/4/2011 9:04:00 PM
Surr: Terphenyl-d14	125	30-125	SH	%REC	1	10/4/2011 9:04:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU33-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 10:52:46 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 10:52:46 AM
Surr: Decachlorobiphenyl	90.3	60-125		%REC	1	8/19/2011 10:52:46 AM
Surr: Tetrachloro-m-xylene	78.7	60-125		%REC	1	8/19/2011 10:52:46 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,100,000	130,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Arsenic	1,700	200		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Barium	16,000	3,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Beryllium	400	260		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Cadmium	180	130		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Calcium	1,300,000	130,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Chromium	7,000	1,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Cobalt	4,300	660		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Copper	7,800	660		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Iron	15,000,000	530,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Lead	10,000	130		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Magnesium	2,500,000	66,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Manganese	240,000	13,000		µg/Kg-dry	400	9/7/2011 12:40:54 PM
Nickel	7,100	1,300		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Potassium	480,000	66,000		µg/Kg-dry	20	9/7/2011 11:45:14 AM
Selenium	350	660	J	µg/Kg-dry	20	9/7/2011 10:26:25 AM
Sodium	54,000	66,000	J	µg/Kg-dry	20	9/7/2011 11:45:14 AM
Thallium	ND	260	U	µg/Kg-dry	20	9/7/2011 10:26:25 AM
Vanadium	19,000	530		µg/Kg-dry	20	9/7/2011 10:26:25 AM
Zinc	38,000	6,600		µg/Kg-dry	20	9/7/2011 10:26:25 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:50:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-014 **Matrix:** SOIL

Client Sample ID IOA-SS-EU33-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	100	200	J	µg/Kg-dry	10	9/8/2011 6:14:54 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:14:54 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	4.4	29	J	µg/Kg-dry	1	8/24/2011 2:01:11 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Acenaphthylene	13	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Anthracene	11	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(a)anthracene	37	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(a)pyrene	42	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(b)fluoranthene	77	170	JmH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(g,h,i)perylene	36	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Benzo(k)fluoranthene	58	170	JmH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Chrysene	53	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Fluoranthene	68	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Indeno(1,2,3-cd)pyrene	31	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Phenanthrene	30	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Pyrene	61	170	JH	µg/Kg-dry	1	10/3/2011 8:03:00 PM
Surr: 2-Fluorobiphenyl	84.1	45-105	H	%REC	1	10/3/2011 8:03:00 PM
Surr: Nitrobenzene-d5	86.9	35-100	H	%REC	1	10/3/2011 8:03:00 PM
Surr: Terphenyl-d14	99.6	30-125	H	%REC	1	10/3/2011 8:03:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.1	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU34-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Aroclor 1260	ND	39	U	µg/Kg-dry	1	8/19/2011 10:28:35 AM
Total PCBs	ND	39		µg/Kg-dry	1	8/19/2011 10:28:35 AM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/19/2011 10:28:35 AM
Surr: Tetrachloro-m-xylene	93.6	60-125		%REC	1	8/19/2011 10:28:35 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,600,000	150,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Arsenic	1,600	230		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Barium	22,000	3,800		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Beryllium	530	300		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Cadmium	210	150		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Calcium	1,600,000	150,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Chromium	8,200	1,500		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Cobalt	5,600	760		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Copper	6,100	760		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Iron	22,000,000	610,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Lead	9,900	150		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Magnesium	2,100,000	76,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Manganese	380,000	15,000		µg/Kg-dry	400	9/7/2011 12:40:04 PM
Nickel	7,700	1,500		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Potassium	310,000	76,000		µg/Kg-dry	20	9/7/2011 11:44:24 AM
Selenium	240	760	J	µg/Kg-dry	20	9/7/2011 10:24:49 AM
Sodium	47,000	76,000	J	µg/Kg-dry	20	9/7/2011 11:44:24 AM
Thallium	ND	300	U	µg/Kg-dry	20	9/7/2011 10:24:49 AM
Vanadium	16,000	610		µg/Kg-dry	20	9/7/2011 10:24:49 AM
Zinc	33,000	7,600		µg/Kg-dry	20	9/7/2011 10:24:49 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:45:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-013 **Matrix:** SOIL

Client Sample ID IOA-SS-EU34-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	97	250	J	µg/Kg-dry	10	9/8/2011 6:14:07 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:14:07 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	3.1	28	J	µg/Kg-dry	1	8/24/2011 1:59:43 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Acenaphthene	8.7	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Anthracene	19	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(a)anthracene	51	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(a)pyrene	51	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(b)fluoranthene	74	190	JmH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(g,h,i)perylene	31	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Benzo(k)fluoranthene	36	190	JmH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Chrysene	67	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Fluoranthene	150	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Phenanthrene	95	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Pyrene	110	190	JH	µg/Kg-dry	1	10/3/2011 2:35:00 PM
Surr: 2-Fluorobiphenyl	90.8	45-105	H	%REC	1	10/3/2011 2:35:00 PM
Surr: Nitrobenzene-d5	92.4	35-100	H	%REC	1	10/3/2011 2:35:00 PM
Surr: Terphenyl-d14	95.6	30-125	H	%REC	1	10/3/2011 2:35:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	16	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU35-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/19/2011 5:05:52 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/19/2011 5:05:52 AM
Surr: Decachlorobiphenyl	116	60-125		%REC	1	8/19/2011 5:05:52 AM
Surr: Tetrachloro-m-xylene	99.1	60-125		%REC	1	8/19/2011 5:05:52 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,500,000	170,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Arsenic	1,200	250		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Barium	12,000	4,200		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Beryllium	310	330	J	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Cadmium	160	170	J	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Chromium	9,000	1,700		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Cobalt	3,600	840		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Copper	7,900	840		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Iron	12,000,000	670,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Lead	8,200	170		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Magnesium	2,300,000	84,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Manganese	200,000	17,000		µg/Kg-dry	400	9/7/2011 12:10:33 PM
Nickel	7,700	1,700		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Potassium	320,000	84,000		µg/Kg-dry	20	9/7/2011 11:24:02 AM
Selenium	ND	840	U	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Sodium	49,000	84,000	J	µg/Kg-dry	20	9/7/2011 11:24:02 AM
Thallium	ND	330	U	µg/Kg-dry	20	9/7/2011 9:45:55 AM
Vanadium	11,000	670		µg/Kg-dry	20	9/7/2011 9:45:55 AM
Zinc	33,000	8,400		µg/Kg-dry	20	9/7/2011 9:45:55 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-005 **Matrix:** SOIL

Client Sample ID IOA-SS-EU35-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	85	210	J	µg/Kg-dry	10	9/8/2011 6:00:03 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:00:03 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.7	32	J	µg/Kg-dry	1	8/24/2011 1:33:18 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(a)anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(a)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(b)fluoranthene	7.8	170	JmH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(g,h,i)perylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Benzo(k)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Chrysene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Fluoranthene	7.8	170	JH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Phenanthrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:37:00 PM
Surr: 2-Fluorobiphenyl	82.2	45-105	H	%REC	1	10/3/2011 12:37:00 PM
Surr: Nitrobenzene-d5	80.9	35-100	H	%REC	1	10/3/2011 12:37:00 PM
Surr: Terphenyl-d14	88.9	30-125	H	%REC	1	10/3/2011 12:37:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	6.7	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU36-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 4:17:33 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 4:17:33 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/19/2011 4:17:33 AM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 4:17:33 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	9,400,000	170,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Arsenic	2,300	260		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Barium	22,000	4,400		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Beryllium	450	350		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Cadmium	330	170		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Chromium	15,000	1,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Cobalt	4,900	870		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Copper	13,000	870		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Iron	18,000,000	700,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Lead	32,000	170		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Magnesium	3,000,000	87,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Manganese	350,000	17,000		µg/Kg-dry	400	9/7/2011 12:13:03 PM
Nickel	9,900	1,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Potassium	440,000	87,000		µg/Kg-dry	20	9/7/2011 11:26:32 AM
Selenium	ND	870	U	µg/Kg-dry	20	9/7/2011 9:51:20 AM
Sodium	58,000	87,000	J	µg/Kg-dry	20	9/7/2011 11:26:32 AM
Thallium	ND	350	U	µg/Kg-dry	20	9/7/2011 9:51:20 AM
Vanadium	19,000	700		µg/Kg-dry	20	9/7/2011 9:51:20 AM
Zinc	44,000	8,700		µg/Kg-dry	20	9/7/2011 9:51:20 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 12:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU36-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	160	250	J	µg/Kg-dry	10	9/8/2011 6:02:24 PM
Silver	ND	150	U	µg/Kg-dry	10	9/8/2011 6:02:24 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	22	32	J	µg/Kg-dry	1	8/24/2011 1:40:41 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	13	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Acenaphthene	120	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Acenaphthylene	10	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Anthracene	210	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(a)anthracene	630	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(a)pyrene	440	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(b)fluoranthene	750	190	mH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(g,h,i)perylene	150	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Benzo(k)fluoranthene	250	190	mH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Chrysene	700	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Dibenzo (a,h) anthracene	52	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Fluoranthene	1,300	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Fluorene	97	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Indeno(1,2,3-cd)pyrene	150	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Naphthalene	21	190	JH	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Phenanthrene	1,000	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Pyrene	1,300	190	H	µg/Kg-dry	1	10/4/2011 7:53:00 PM
Surr: 2-Fluorobiphenyl	76.5	45-105	H	%REC	1	10/4/2011 7:53:00 PM
Surr: Nitrobenzene-d5	72.1	35-100	H	%REC	1	10/4/2011 7:53:00 PM
Surr: Terphenyl-d14	91.8	30-125	H	%REC	1	10/4/2011 7:53:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	14	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU42-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1221	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1232	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1242	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1248	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1254	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Aroclor 1260	ND	39	U	µg/Kg-dry	1	8/19/2011 9:56:02 AM
Total PCBs	ND	39		µg/Kg-dry	1	8/19/2011 9:56:02 AM
Surr: Decachlorobiphenyl	113	60-125		%REC	1	8/19/2011 9:56:02 AM
Surr: Tetrachloro-m-xylene	94.8	60-125		%REC	1	8/19/2011 9:56:02 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	11,000,000	200,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Arsenic	2,300	300		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Barium	21,000	5,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Beryllium	390	400	J	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Cadmium	210	200		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Calcium	610,000	200,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Chromium	9,300	2,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Cobalt	3,700	1,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Copper	6,900	1,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Iron	19,000,000	800,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Lead	16,000	200		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Magnesium	2,000,000	100,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Manganese	240,000	20,000		µg/Kg-dry	400	9/7/2011 12:39:14 PM
Nickel	7,200	2,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Potassium	380,000	100,000		µg/Kg-dry	20	9/7/2011 11:43:34 AM
Selenium	420	1,000	J	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Sodium	45,000	100,000	J	µg/Kg-dry	20	9/7/2011 11:43:34 AM
Thallium	ND	400	U	µg/Kg-dry	20	9/7/2011 10:23:13 AM
Vanadium	20,000	800		µg/Kg-dry	20	9/7/2011 10:23:13 AM
Zinc	38,000	10,000		µg/Kg-dry	20	9/7/2011 10:23:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:30:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU42-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	120	180	J	µg/Kg-dry	10	9/8/2011 6:13:21 PM
Silver	95	110	J	µg/Kg-dry	10	9/8/2011 6:13:21 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	17	35	J	µg/Kg-dry	1	8/24/2011 1:58:15 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Acenaphthene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Acenaphthylene	8.4	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Anthracene	10	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(a)anthracene	38	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(a)pyrene	37	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(b)fluoranthene	62	190	JmH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(g,h,i)perylene	23	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Benzo(k)fluoranthene	26	190	JmH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Chrysene	49	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Fluoranthene	61	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Phenanthrene	35	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Pyrene	69	190	JH	µg/Kg-dry	1	10/3/2011 2:12:00 PM
Surr: 2-Fluorobiphenyl	88.7	45-105	H	%REC	1	10/3/2011 2:12:00 PM
Surr: Nitrobenzene-d5	90.8	35-100	H	%REC	1	10/3/2011 2:12:00 PM
Surr: Terphenyl-d14	95.8	30-125	H	%REC	1	10/3/2011 2:12:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	17	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU43-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1221	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1232	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1242	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1248	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1254	ND	340	U	µg/Kg-dry	10	8/19/2011 3:43:26 PM
Aroclor 1260	710	340		µg/Kg-dry	10	8/19/2011 3:43:26 PM
Total PCBs	710	340		µg/Kg-dry	10	8/19/2011 3:43:26 PM
Surr: Decachlorobiphenyl	92.0	60-125		%REC	10	8/19/2011 3:43:26 PM
Surr: Tetrachloro-m-xylene	83.7	60-125		%REC	10	8/19/2011 3:43:26 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,600,000	130,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Arsenic	2,100	200		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Barium	22,000	3,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Beryllium	430	260		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Cadmium	360	130		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Calcium	1,400,000	130,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Chromium	11,000	1,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Cobalt	4,000	660		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Copper	10,000	660		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Iron	16,000,000	530,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Lead	35,000	130		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Magnesium	2,200,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Manganese	310,000	13,000		µg/Kg-dry	400	9/7/2011 12:38:24 PM
Nickel	7,700	1,300		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Potassium	620,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Selenium	310	660	J	µg/Kg-dry	20	9/7/2011 10:21:37 AM
Sodium	77,000	66,000		µg/Kg-dry	20	9/7/2011 11:42:44 AM
Thallium	ND	260	U	µg/Kg-dry	20	9/7/2011 10:21:37 AM
Vanadium	21,000	530		µg/Kg-dry	20	9/7/2011 10:21:37 AM
Zinc	44,000	6,600		µg/Kg-dry	20	9/7/2011 10:21:37 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 2:05:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-011 **Matrix:** SOIL

Client Sample ID IOA-SS-EU43-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	210	200		µg/Kg-dry	10	9/8/2011 6:12:34 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:12:34 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	35	J	µg/Kg-dry	1	8/24/2011 1:53:48 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Acenaphthylene	38	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Anthracene	38	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(a)anthracene	85	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(a)pyrene	81	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(b)fluoranthene	160	170	JmH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(g,h,i)perylene	51	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Benzo(k)fluoranthene	67	170	JmH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Chrysene	110	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Fluoranthene	200	170	H	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Fluorene	10	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Indeno(1,2,3-cd)pyrene	55	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Phenanthrene	98	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Pyrene	160	170	JH	µg/Kg-dry	1	10/3/2011 3:23:00 PM
Surr: 2-Fluorobiphenyl	100	45-105	H	%REC	1	10/3/2011 3:23:00 PM
Surr: Nitrobenzene-d5	104	35-100	SH	%REC	1	10/3/2011 3:23:00 PM
Surr: Terphenyl-d14	109	30-125	H	%REC	1	10/3/2011 3:23:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.4	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108447**

Date Reported: **10/31/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:55:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU44-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 9:07:38 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 9:07:38 AM
Surr: Decachlorobiphenyl	112	60-125		%REC	1	8/19/2011 9:07:38 AM
Surr: Tetrachloro-m-xylene	97.8	60-125		%REC	1	8/19/2011 9:07:38 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	6,800,000	150,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Arsenic	1,700	230		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Barium	19,000	3,800		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Beryllium	580	310		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Cadmium	340	150		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Calcium	1,000,000	150,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Chromium	7,900	1,500		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Cobalt	4,900	770		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Copper	11,000	770		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Iron	14,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Lead	20,000	150		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Magnesium	2,400,000	77,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Manganese	390,000	15,000		µg/Kg-dry	400	9/7/2011 12:37:35 PM
Nickel	8,800	1,500		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Potassium	400,000	77,000		µg/Kg-dry	20	9/7/2011 11:41:55 AM
Selenium	300	770	J	µg/Kg-dry	20	9/7/2011 10:20:01 AM
Sodium	58,000	77,000	J	µg/Kg-dry	20	9/7/2011 11:41:55 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 10:20:01 AM
Vanadium	15,000	620		µg/Kg-dry	20	9/7/2011 10:20:01 AM
Zinc	58,000	7,700		µg/Kg-dry	20	9/7/2011 10:20:01 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:55:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-010 **Matrix:** SOIL

Client Sample ID IOA-SS-EU44-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	240	200		µg/Kg-dry	10	9/8/2011 6:11:48 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:11:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.9	32	J	µg/Kg-dry	1	8/24/2011 1:52:21 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Anthracene	9.5	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(a)anthracene	34	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(a)pyrene	47	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(b)fluoranthene	93	180	JmH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(g,h,i)perylene	26	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Benzo(k)fluoranthene	33	180	JmH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Chrysene	69	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Fluoranthene	100	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Phenanthrene	64	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Pyrene	98	180	JH	µg/Kg-dry	1	10/4/2011 7:06:00 PM
Surr: 2-Fluorobiphenyl	98.0	45-105	H	%REC	1	10/4/2011 7:06:00 PM
Surr: Nitrobenzene-d5	97.1	35-100	H	%REC	1	10/4/2011 7:06:00 PM
Surr: Terphenyl-d14	114	30-125	H	%REC	1	10/4/2011 7:06:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	13	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU45-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1221	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1232	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1242	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1248	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1254	ND	42	U	µg/Kg-dry	1	8/19/2011 7:55:02 AM
Aroclor 1260	61	42		µg/Kg-dry	1	8/19/2011 7:55:02 AM
Total PCBs	61	42		µg/Kg-dry	1	8/19/2011 7:55:02 AM
Surr: Decachlorobiphenyl	103	60-125		%REC	1	8/19/2011 7:55:02 AM
Surr: Tetrachloro-m-xylene	87.5	60-125		%REC	1	8/19/2011 7:55:02 AM
TARGET ANALYTE LIST METALS (23) **METALS, ICP/MS**				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	8,000,000	140,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Arsenic	7,200	210		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Barium	35,000	3,500		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Beryllium	360	280		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Cadmium	580	140		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Calcium	1,000,000	140,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Chromium	14,000	1,400		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Cobalt	3,800	700		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Copper	25,000	700		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Iron	14,000,000	560,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Lead	320,000	140		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Magnesium	1,900,000	70,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Manganese	220,000	14,000		µg/Kg-dry	400	9/7/2011 12:35:05 PM
Nickel	8,900	1,400		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Potassium	340,000	70,000		µg/Kg-dry	20	9/7/2011 11:39:26 AM
Selenium	380	700	J	µg/Kg-dry	20	9/7/2011 10:15:13 AM
Sodium	43,000	70,000	J	µg/Kg-dry	20	9/7/2011 11:39:26 AM
Thallium	92	280	J	µg/Kg-dry	20	9/7/2011 10:15:13 AM
Vanadium	25,000	560		µg/Kg-dry	20	9/7/2011 10:15:13 AM
Zinc	81,000	7,000		µg/Kg-dry	20	9/7/2011 10:15:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU45-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	550	200		µg/Kg-dry	10	9/8/2011 6:09:28 PM
Silver	76	120	J	µg/Kg-dry	10	9/8/2011 6:09:28 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	60	30		µg/Kg-dry	1	8/24/2011 1:48:03 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	55	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Acenaphthene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Acenaphthylene	110	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Anthracene	190	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(a)anthracene	290	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(a)pyrene	260	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(b)fluoranthene	620	1,000	JmH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(g,h,i)perylene	200	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Benzo(k)fluoranthene	210	1,000	JmH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Chrysene	400	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Dibenzo (a,h) anthracene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Fluoranthene	570	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Fluorene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Naphthalene	ND	1,000	UH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Phenanthrene	320	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Pyrene	610	1,000	JH	µg/Kg-dry	5	10/4/2011 7:30:00 PM
Surr: 2-Fluorobiphenyl	92.0	45-105	H	%REC	5	10/4/2011 7:30:00 PM
Surr: Nitrobenzene-d5	84.6	35-100	H	%REC	5	10/4/2011 7:30:00 PM
Surr: Terphenyl-d14	117	30-125	H	%REC	5	10/4/2011 7:30:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	22	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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31628 Glendale St.
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU46-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Aroclor 1260	5.2	35	J	µg/Kg-dry	1	8/25/2011 2:37:47 AM
Total PCBs	5.2	35		µg/Kg-dry	1	8/25/2011 2:37:47 AM
Surr: Decachlorobiphenyl	77.0	60-125		%REC	1	8/25/2011 2:37:47 AM
Surr: Tetrachloro-m-xylene	73.6	60-125		%REC	1	8/25/2011 2:37:47 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	10,000,000	150,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Arsenic	1,400	230		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Barium	17,000	3,900		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Beryllium	530	310		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Cadmium	250	150		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Calcium	830,000	150,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Chromium	11,000	1,500		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Cobalt	3,100	770		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Copper	5,700	770		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Iron	13,000,000	620,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Lead	33,000	150		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Magnesium	2,100,000	77,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Manganese	160,000	15,000		µg/Kg-dry	400	9/7/2011 12:12:13 PM
Nickel	7,600	1,500		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Potassium	320,000	77,000		µg/Kg-dry	20	9/7/2011 11:25:42 AM
Selenium	380	770	J	µg/Kg-dry	20	9/7/2011 9:49:44 AM
Sodium	45,000	77,000	J	µg/Kg-dry	20	9/7/2011 11:25:42 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 9:49:44 AM
Vanadium	17,000	620		µg/Kg-dry	20	9/7/2011 9:49:44 AM
Zinc	40,000	7,700		µg/Kg-dry	20	9/7/2011 9:49:44 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-002 **Matrix:** SOIL

Client Sample ID IOA-SS-EU46-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A** **SW3050B**		Analyst: **at**
Antimony	160	230	J	µg/Kg-dry	10	9/8/2011 6:01:37 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:01:37 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	44	31		µg/Kg-dry	1	8/24/2011 1:39:07 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C** **SW3550C**		Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Anthracene	8.7	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(a)anthracene	33	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(a)pyrene	35	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(b)fluoranthene	53	170	JmH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(g,h,i)perylene	22	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Benzo(k)fluoranthene	20	170	JmH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Chrysene	38	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Fluoranthene	68	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Phenanthrene	29	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Pyrene	59	170	JH	µg/Kg-dry	1	10/3/2011 12:14:00 PM
Surr: 2-Fluorobiphenyl	79.9	45-105	H	%REC	1	10/3/2011 12:14:00 PM
Surr: Nitrobenzene-d5	78.6	35-100	H	%REC	1	10/3/2011 12:14:00 PM
Surr: Terphenyl-d14	88.5	30-125	H	%REC	1	10/3/2011 12:14:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.3	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU47-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/25/2011 2:13:32 AM
Total PCBs	ND	38		µg/Kg-dry	1	8/25/2011 2:13:32 AM
Surr: Decachlorobiphenyl	92.7	60-125		%REC	1	8/25/2011 2:13:32 AM
Surr: Tetrachloro-m-xylene	92.3	60-125		%REC	1	8/25/2011 2:13:32 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	7,900,000	160,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Arsenic	1,300	240		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Barium	11,000	3,900		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Beryllium	270	310	J	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Cadmium	180	160		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Calcium	1,700,000	160,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Chromium	16,000	1,600		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Cobalt	6,300	790		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Copper	7,900	790		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Iron	11,000,000	630,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Lead	10,000	160		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Magnesium	4,900,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Manganese	220,000	16,000		µg/Kg-dry	400	9/7/2011 12:11:23 PM
Nickel	14,000	1,600		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Potassium	300,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Selenium	ND	790	U	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Sodium	85,000	79,000		µg/Kg-dry	20	9/7/2011 11:24:52 AM
Thallium	ND	310	U	µg/Kg-dry	20	9/7/2011 9:47:31 AM
Vanadium	17,000	630		µg/Kg-dry	20	9/7/2011 9:47:31 AM
Zinc	40,000	7,900		µg/Kg-dry	20	9/7/2011 9:47:31 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 11:15:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU47-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	70	230	J	µg/Kg-dry	10	9/8/2011 6:00:50 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:00:50 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.5	33	J	µg/Kg-dry	1	8/24/2011 12:15:30 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 6:42:00 PM
Surr: 2-Fluorobiphenyl	77.5	45-105	H	%REC	1	10/4/2011 6:42:00 PM
Surr: Nitrobenzene-d5	74.5	35-100	H	%REC	1	10/4/2011 6:42:00 PM
Surr: Terphenyl-d14	89.8	30-125	H	%REC	1	10/4/2011 6:42:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	12	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU49-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 8:19:11 AM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 8:19:11 AM
Surr: Decachlorobiphenyl	108	60-125		%REC	1	8/19/2011 8:19:11 AM
Surr: Tetrachloro-m-xylene	87.3	60-125		%REC	1	8/19/2011 8:19:11 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,400,000	170,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Arsenic	36,000	260		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Barium	26,000	4,300		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Beryllium	560	340		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Cadmium	200	170		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Calcium	1,200,000	170,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Chromium	7,900	1,700		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Cobalt	4,000	850		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Copper	6,000	850		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Iron	45,000,000	680,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Lead	16,000	170		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Magnesium	1,700,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Manganese	280,000	17,000		µg/Kg-dry	400	9/7/2011 12:35:56 PM
Nickel	6,100	1,700		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Potassium	330,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Selenium	ND	850	U	µg/Kg-dry	20	9/7/2011 10:16:50 AM
Sodium	120,000	85,000		µg/Kg-dry	20	9/7/2011 11:40:16 AM
Thallium	ND	340	U	µg/Kg-dry	20	9/7/2011 10:16:50 AM
Vanadium	18,000	680		µg/Kg-dry	20	9/7/2011 10:16:50 AM
Zinc	29,000	8,500		µg/Kg-dry	20	9/7/2011 10:16:50 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-008 **Matrix:** SOIL

Client Sample ID IOA-SS-EU49-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	120	190	J	µg/Kg-dry	10	9/8/2011 6:10:16 PM
Silver	ND	110	U	µg/Kg-dry	10	9/8/2011 6:10:16 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	39	J	µg/Kg-dry	1	8/24/2011 1:49:29 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/3/2011 1:48:00 PM
Surr: 2-Fluorobiphenyl	88.0	45-105	H	%REC	1	10/3/2011 1:48:00 PM
Surr: Nitrobenzene-d5	89.8	35-100	H	%REC	1	10/3/2011 1:48:00 PM
Surr: Terphenyl-d14	92.3	30-125	H	%REC	1	10/3/2011 1:48:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU48-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				SW8082 SW3550C		Analyst: MB
Aroclor 1016	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1221	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1232	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1242	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1248	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1254	ND	36	U	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Aroclor 1260	8.2	36	J	µg/Kg-dry	1	8/19/2011 8:43:27 AM
Total PCBs	8.2	36		µg/Kg-dry	1	8/19/2011 8:43:27 AM
Surr: Decachlorobiphenyl	96.7	60-125		%REC	1	8/19/2011 8:43:27 AM
Surr: Tetrachloro-m-xylene	90.7	60-125		%REC	1	8/19/2011 8:43:27 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				SW6020A SW3050B		Analyst: AV
Aluminum	8,500,000	160,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Arsenic	3,400	240		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Barium	21,000	4,000		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Beryllium	450	320		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Cadmium	190	160		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Calcium	1,400,000	160,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Chromium	9,900	1,600		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Cobalt	5,200	810		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Copper	8,700	810		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Iron	20,000,000	640,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Lead	8,100	160		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Magnesium	2,800,000	81,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Manganese	310,000	16,000		µg/Kg-dry	400	9/7/2011 12:36:45 PM
Nickel	9,300	1,600		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Potassium	420,000	81,000		µg/Kg-dry	20	9/7/2011 11:41:06 AM
Selenium	ND	810	U	µg/Kg-dry	20	9/7/2011 10:18:25 AM
Sodium	80,000	81,000	J	µg/Kg-dry	20	9/7/2011 11:41:06 AM
Thallium	ND	320	U	µg/Kg-dry	20	9/7/2011 10:18:25 AM
Vanadium	15,000	640		µg/Kg-dry	20	9/7/2011 10:18:25 AM
Zinc	36,000	8,100		µg/Kg-dry	20	9/7/2011 10:18:25 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Revision v2

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108447

Date Reported: 10/31/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/10/2011 1:35:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108447-009 **Matrix:** SOIL

Client Sample ID IOA-SS-EU48-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	110	190	J	µg/Kg-dry	10	9/8/2011 6:11:02 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:11:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	1.9	38	J	µg/Kg-dry	1	8/24/2011 1:50:55 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(a)anthracene	10	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(b)fluoranthene	12	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Chrysene	7.8	180	JmH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Fluoranthene	14	180	JH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Pyrene	15	180	JH	µg/Kg-dry	1	10/4/2011 8:41:00 PM
Surr: 2-Fluorobiphenyl	89.4	45-105	H	%REC	1	10/4/2011 8:41:00 PM
Surr: Nitrobenzene-d5	86.5	35-100	H	%REC	1	10/4/2011 8:41:00 PM
Surr: Terphenyl-d14	112	30-125	H	%REC	1	10/4/2011 8:41:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/15/2011 6:15:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

APPENDIX C

REGIONAL WORKSHEETS

REGION I, EPA-NE INORGANIC REGIONAL DATA ASSESSMENT (IRDA)*

CASE #: _____ SITE NAME: NAS South WEYMOUTH

LAB NAME: Katahdin # OF SAMPLES/MATRIX: 14/Soil

SDG #: 110847 VALIDATION CONTRACTOR: _____

SOW #/CONTRACT #: _____ VALIDATOR'S NAME: _____

EPA-NE DV TIER LEVEL: _____ DATE DP REC'D BY EPA-NE: _____

PO: **ACTION_____ FYI_____ DV COMPLETION DATE: _____

ANALYTICAL DATA QUALITY SUMMARY See DV Report

		ICP-AES	ICP- MS	HG	CN
I.	Preservation and Technical Holding Times				
II.	ICP-MS Tune				
III.	Calibrations				
IV.	Blanks				
V.	ICP-AES Interference Check Sample (ICS)				
VI.	ICP-MS Interference Check Sample (ICS)				
VII.	ICP-MS Internal Standards				
VIII.	Matrix Spikes				
IX.	Laboratory Duplicate Samples				
X.	Field Duplicates				
XI.	ICP Serial Dilutions				
XII.	Sensitivity Check				
XIII.	Performance Evaluation Samples/Accuracy Check				
XIV.	Analyte Quantitation and Reported Quantitation Limits				
XV.	System Performance				
XVI.	Overall Evaluation of Data				

o = Data had no problems or were qualified due to minor contractual problems.
m = Data were qualified due to major contractual problems.
z = Data were rejected as unusable due to major contractual problems.

ACTION ITEMS: (z items) See DV Report

AREAS OF CONCERN: (m items) _____

COMMENTS: _____

* This form assesses the analytical data quality in terms of contractual compliance only. It does not assess sampling errors and/or non-contractual analytical issues that affect data quality.

** Check "ACTION" only if contractual defects resulted in reduced payment/data rejection recommendations.

Validator: Megan Curson Date: 12/5/11

INSTRUCTIONS ON REVERSE SIDE

DRAFT 11/08

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name _____
Reference No. _____

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name Katahdin
Case/Project No. _____
SDG No. 1108447
No. of Samples/Matrix 14/Soil

SOW/Method No. _____
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. See DV Report

Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____
PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc., that received partial Tier III validation.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation and Technical Holding Times
- ICP-MS Tune
- Calibrations
- Blanks
- ICP-AES Interference Check Sample (ICS)
- ICP-MS Interference Check Sample (ICS)
- ICP-MS Internal Standards
- Matrix Spikes
- Laboratory Duplicate Samples
- Field Duplicates
- ICP Serial Dilutions
- Sensitivity Check
- Performance Evaluation Samples/Accuracy Check
- Analyte Quantitation and Reported Quantitation Limits
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with analyte is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Analyte not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
BB, EB - Analyte detected in aqueous bottle blank or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Megan Carson Company Name TetraTech Phone Number _____

Date Validation Started _____ Date Validation Completed _____

See DV Report

EPA-NE - Data Validation Worksheet
INORG-I

I. PRESERVATION AND HOLDING TIMES

Circle sample numbers with exceeded technical holding times or omitted preservation.
Circle all exceeded technical holding times.

Sample No.	Matrix	Pres. Code		Date Sampled	Metals		Hg		CN		Action
		Metals	CN		Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	

Preservation Code:
1. Cool (≤ 6°C)
2. pH < 2 with HNO_3
3. pH > 12 with NaOH
4. Room Temperature
5. Freeze
6. Reducing agent (for oxidants)
7. Treated for sulfides
8. Other - _____

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Sampler:_____ Company:_____ Contacted: Y N Date:_____

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-II

See DV Report

II. ICP-MS TUNE

List all Tunes that are outside method QC acceptance criteria.

Method:_____

Method QC acceptance criteria for mass calibration:_____

Method QC acceptance criteria for resolution check/peak width:_____ at_____% peak height.

Method QC acceptance criteria for % RSD:_____

Analysis Date and Time	Analyte	Mass Calibration			Mass Resolution		% RSD of Absolute Signals	Analyte/Samples Affected	Action
		True Mass (amu)	Measured Mass (amu)	Absolute Difference of Masses (amu)	Peak Width (amu)	% Peak Height			
Comments:									

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-III-A/B/C

See DV Report

III. CALIBRATIONS

A. Instrument Calibration - List all calibration correlation coefficients that are outside the method QC acceptance criteria.
Calibration correlation QC acceptance criteria: _____ Calibration Type: _____

Date/Time	Instr.	Analyte	Corr. Coef.	Samples Affected	Action

B. Initial and Continuing Calibration Verifications - List all ICV and CCV analyte recoveries that are outside the method QC acceptance criteria.
ICV method QC acceptance criteria: _____ CCV method QC acceptance criteria: _____

Date	Instr.	Analyte	ICV/CCV #	% R	Samples Affected	Action

C. Quantitation Limit Check Standard - List all QL Check Standard analytes that are outside method QC acceptance criteria.
QL Check Standard method QC acceptance criteria: _____

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action

Comments: _____

_____

Validator: _____ Date: _____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-A/B

See DV Report

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: _____ Company: _____ Contacted: Y N Date: _____

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency? Y N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria? Y N

Comments: _____

_____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
INORG-IV-C.1
IV. BLANKS

C.1 Blank Contamination Worksheet

See DV Report

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Calcium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury															
Nickel															
Potassium															
Selenium															
Silver															
Sodium															
Thallium															
Vanadium															
Zinc															
Cyanide															

Validator: _____ Date: _____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-C.2

See DV Report

IV. BLANKS

C.2 Blank Actions - List the maximum concentrations of each analyte among all blanks associated with each sample.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units)	Blank Action Level (units)	Sample QL	Samples Affected	Action
Comments:							

Validator: _____ Date: _____

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-A

See DV Report

V. A. ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB

1. List all analytes in the ICSAB that are outside ICSAB percent recovery criteria.

Date	Analyte	%R	Conc. of Interferents Observed in ICSAB (ug/L)				Samples Affected	Action
			Al	Ca	Fe	Mg		
Comments:								

Validator:_____ Date:_____

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-B.1

See DV Report

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	
Comments:										

Validator:_____ Date:_____

EPA NE - Data Validation Worksheet
INORG-V-B.2

See DV Report

V. B.2 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

2. List all affected sample results.

Affected Sample	Interferent	Conc. in Sample (ug/L)	Analyte	Conc. in Sample (ug/L)	Estimated Interference in Sample (ug/L)	Action
Comments:						

Validator:_____ Date:_____

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-A

See DV Report

VI. A. ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB

List all analytes that are outside ICSAB criteria of 80-120% R.

Date	Analyte	%R	Samples Affected	Action
Comments:				

Validator:_____ Date:_____

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-B

See DV Report

VI. B. ICP-MS INTERFERENCE CHECK SAMPLE - ICSA

List all analytes that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV ± 2xMDL	Samples Affected	Action
Comments:							

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-VII

See DV Report

VII. ICP-MS INTERNAL STANDARDS

List all internal standards that are outside method QC acceptance criteria.

IS method QC acceptance criteria: _____

Sample Number	Date and Time Analyzed	IS, amu	% RI	Analytes Affected (amu)	Action
Comments:					

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-VIII

See DV Report

VIII. MATRIX SPIKES - List all matrix spike analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each matrix spike sample.

Sample No.: _____ Matrix: _____

Method	Analyte	Spiked Sample Result	Sample Result	Amount of Spike Added	MS % Recovery	Method QC Limits % Recovery	Post-Digest Spike % Recovery	Action
Comments:								

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IX

See DV Report

IX. LABORATORY DUPLICATE SAMPLES - List all analytes that are outside method QC acceptance criteria for the specific matrix.

Use a separate worksheet for each laboratory duplicate sample.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Laboratory duplicate sample method QC acceptance criteria:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the field duplicate sample data indicate acceptable field precision? Y N

Comments:_____

Validator:_____ Date:_____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-X

See DV Report

X. FIELD DUPLICATES - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the laboratory duplicate sample data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for contact and resolution obtained: _____

Validator: _____ Date: _____

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-XI

See DV Report

XI. ICP SERIAL DILUTIONS

Use a separate worksheet for each serial dilution sample.

Sample No.:_____ Matrix:_____ Method:_____

List all serial dilution analytes that are outside method QC acceptance criteria.

% Difference method QC acceptance criteria: _____
Minimum concentration required to apply the % D criteria (e.g., 50x MDL): _____

Analyte	MDL	Min. Conc. Required	Sample Result	Serial Dilution Sample Result (corrected for dilution)	% D	Action
Comments:						

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet
INORG-XII-A/B

See DV Report

XII. SENSITIVITY CHECK

A. Method Detection Limit Study - List all analytes that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each analyte and matrix of interest? **Y N**
- Were samples analyzed within one year of the MDL study and on the same instrument? **Y N**

Matrix	Analyte	MDL	MDL > QL	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

B. Laboratory Fortified Blank - List all LFB analytes that are outside the LFB criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? **Y N**
- Does the LFB contain all target analytes at their QLs? **Y N**

Matrix	Method	Analyte	% R	Method QC Limits % R	Samples Affected	Action

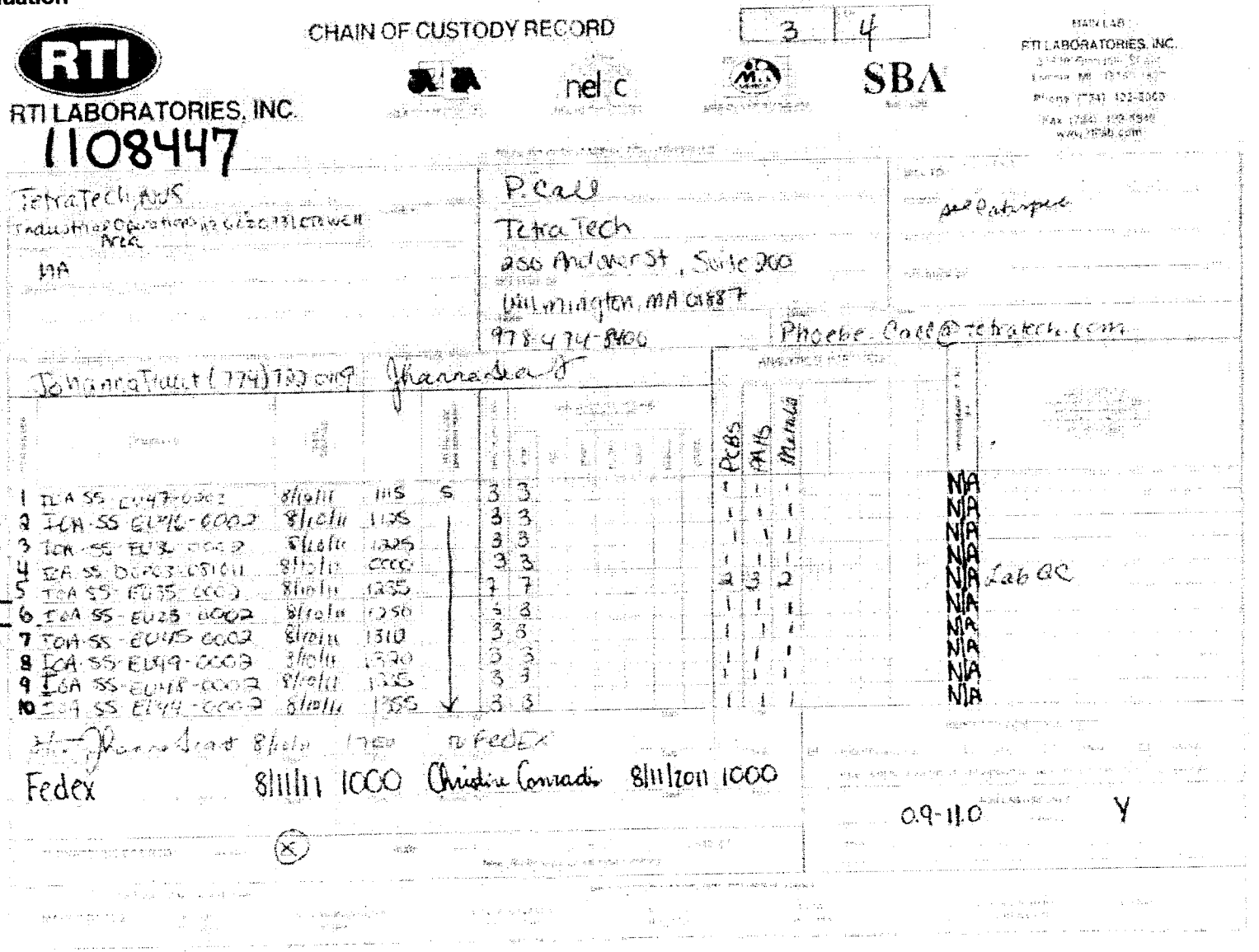
Comments:_____

_____

Validator:_____ Date:_____

APPENDIX D

SUPPORT DOCUMENTATION



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

3 | 4

nelac

SBA

MAIN LAB: RTI LABORATORIES, INC.

1108447

Tetra Tech, NUS
Industrial Operations 12 Ozzo 781 Crowell Area
MA

P. Call
Tetra Tech
250 Andover St, Suite 200
Wilmington, MA 01887
978-474-8400
Phoebe.Call@tetratech.com

see Catalyst

Johanna Faust (774) 722-0119 Johanna Faust

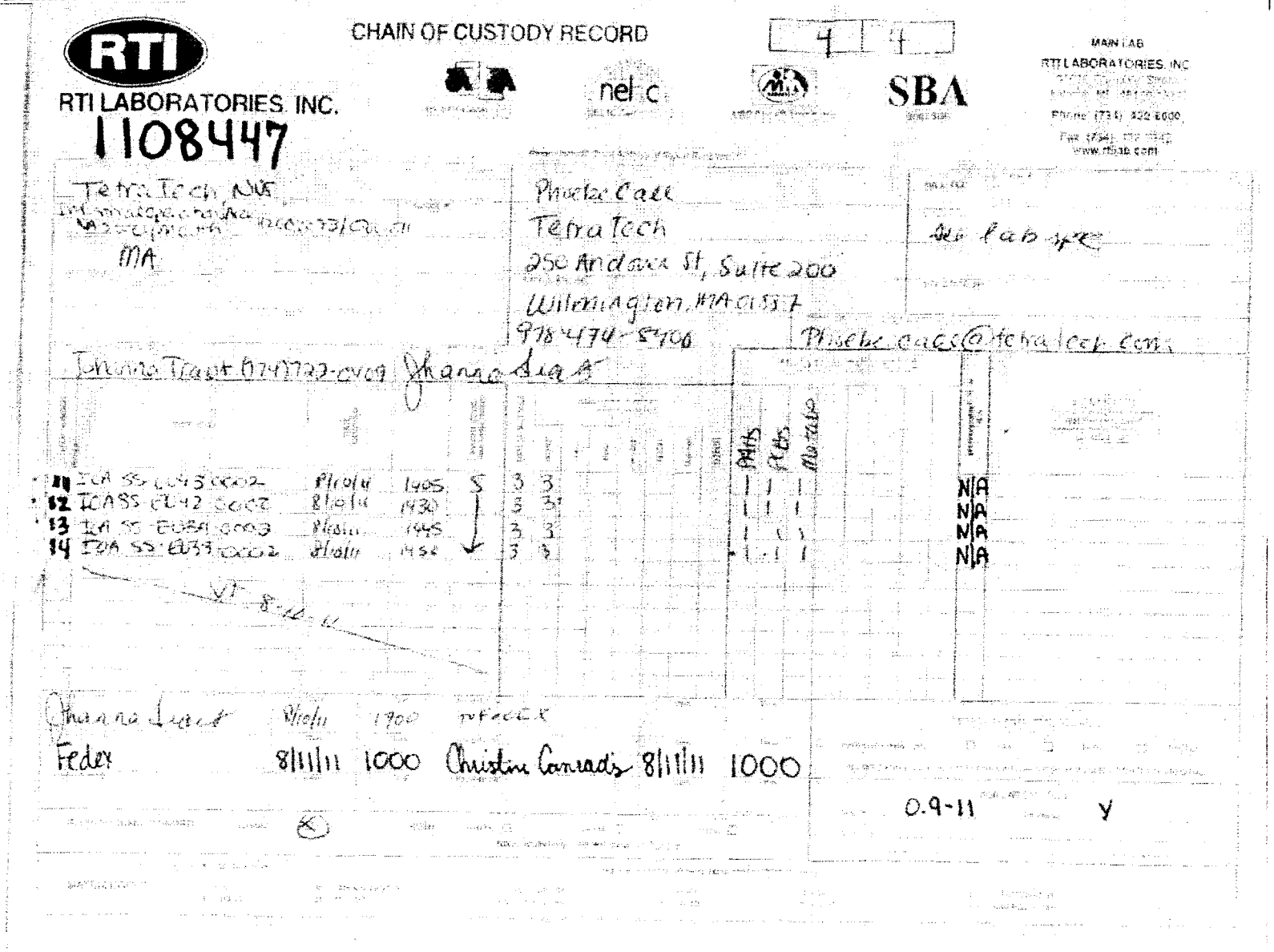
	Sample	Date	Time				PCBs	PAHs	Metals		
1	IOA SS EU47-0002	8/10/11	1115	S	3	3	1	1	1	N/A	
2	IOA SS EU46-0002	8/10/11	1125		3	3	1	1	1	N/A	
3	IOA SS EU36-0002	8/10/11	1225		3	3	1	1	1	N/A	
4	IOA SS DOP03-081011	8/10/11	0000		3	3	1	1	1	N/A	
5	IOA SS EU35-0002	8/10/11	1235		7	7	2	3	2	N/A	Lab QC
6	IOA SS EU23-0002	8/10/11	1250		3	3	1	1	1	N/A	
7	IOA SS EU45-0002	8/10/11	1310		3	3	1	1	1	N/A	
8	IOA SS EU49-0002	8/10/11	1320		3	3	1	1	1	N/A	
9	IOA SS EU48-0002	8/10/11	1335		3	3	1	1	1	N/A	
10	IOA SS EU44-0002	8/10/11	1355		3	3	1	1	1	N/A	

Johanna Faust 8/10/11 1750 to FedEx

Fedex 8/11/11 1000 Christine Conradi 8/11/2011 1000

0.9-11.0 Y

www.ammara.com



RTI LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

4 | 4

nelac

SBA

MAIN LAB
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1108447

Tetra Tech, NUS
[illegible]
MA

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Wilmington, MA 01887
978-474-8700

See lab spec

Phoebe.call@tetratech.com

Johanna Trant 0749722-0409 Johanna Trant

							PAHs	PCBs	Metals	
11	IOA SS-EU43-0002	8/10/11	1405	S	3	3	1	1	1	N/A
12	IOA SS-EU42-0002	8/10/11	1430		3	3	1	1	1	N/A
13	IOA SS-EU34-0003	8/10/11	1445		3	3	1	1	1	N/A
14	IOA SS-EU33-0002	8/10/11	1450		3	3	1	1	1	N/A

VT 8-10-11

Johanna Trant 8/10/11 1900 to FEDEX

Fedex 8/11/11 1000 Christine Conrad's 8/11/11 1000

0.9-11 Y

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/11/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 14 soil samples.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample extracts for PAH analyses were analyzed beyond the holding time.

Samples 1108425-007 was analyzed at a dilution due to oily appearing extract - reporting limits elevated.

Matrix interference with internal standards was noted in several samples. Samples were re-analyzed with internal standard responses consistent with the original analyses.

QUALITY CONTROL:

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Extraction Comments for SW_3550BNA, Sample 1108447-006A: Oily extract, could not concentrated to standard 1mL final volume - - reporting limits elevated.

Surrogate recoveries were within control limits except as noted below:

Sample ID	Nitrobenzene-d5	Terphenyl-d14
1108447-006		125%
1108447-011	104%	

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

Batch ID 43183:

- LCS-23237 recovery slightly elevated for Benzo(a)anthracene (110.05%).
- Sample ID 1108425-007AMSD recoveries exceeded control limits for Benzo(a)anthracene (128%), Benzo(a)pyrene (241.1%), Benzo(b)fluoranthene (128%), Chrysene (113%), Fluoranthene (137%), Phenanthrene (140%) and Pyrene (131%). RPDs are elevated, as well, for Fluroanthene (38.2%), Phenanthrene (47.0%) and Pyrene (33.2%).
- Sample ID 1108425-007AMSD – RPD results for Fluroanthene (38.2%), Phenanthrene (47.0%) and Pyrene (33.2%).

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits.

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

Batch ID 23326:

- Sample ID 1108447-005CMS/MSD recoveries and RPD results for Calcium, Aluminum, Iron, Magnesium and Manganese were affected by elevated concentrations in the sample.

Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

RTI Laboratories, Inc.

Date: *17-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108447

CASE NARRATIVE

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: _____ Date: 11/17/2011
Charles O'Bryan, Director, Quality Management

NAS SOUTH WEYMOUTH

~~WATER~~ Soil DATA

1108447

FRACTION	CHEMICAL	IOA-SS-DUP03-081011	UNITS	IOA-SS-EU43-0002	RPD	D
M	ALUMINUM	10000000	UG/KG	7600000	27.27	2400000.00
M	CALCIUM	900000	UG/KG	1400000	43.48	500000.00
M	IRON	11000000	UG/KG	16000000	37.04	5000000.00
M	MAGNESIUM	1900000	UG/KG	2200000	14.63	300000.00
M	MANGANESE	130000	UG/KG	310000	81.82	180000.00
M	MERCURY	32	UG/KG	12 J	90.91	20.00
M	POTASSIUM	310000	UG/KG	620000	66.67	310000.00
M	SODIUM	59000 J	UG/KG	77000	26.47	18000.00

Mn, K

50

Current RPD Quality Control Limit: ~~30~~ %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH

~~WATER~~ Soil DATA

1108447

FRACTION	CHEMICAL	IOA-SS-DUP03-081011DL	UNITS	IOA-SS-EU43-0002DL	RPD	D
M	ANTIMONY	ND	UG/KG	210	200.00	UL 210.00
M	ARSENIC	1300	UG/KG	2100	47.06	OK 800.00
M	BARIUM	16000	UG/KG	22000	31.58	OK 6000.00
M	BERYLLIUM	280 J	UG/KG	430	42.25	OK 150.00
M	CADMIUM	220	UG/KG	360	48.28	OK 140.00
M	CHROMIUM	9600	UG/KG	11000	13.59	1400.00
M	COBALT	2700	UG/KG	4000	38.81	OK 1300.00
M	COPPER	4800	UG/KG	10000	70.27	5200.00
M	LEAD	24000	UG/KG	35000	37.29	OK 1000.00
M	NICKEL	7100	UG/KG	7700	8.11	600.00
M	SELENIUM	300 J	UG/KG	310 J	3.28	10.00
M	VANADIUM	16000	UG/KG	21000	27.03	5000.00
M	ZINC	37000	UG/KG	44000	17.28	7000.00

Cu

Current RPD Quality Control Limit: ~~30~~ 50 %.

Shaded cells indicate RPDs that exceed the applicable quality control limit.

HOLDTIME

PROJ_NO 02073

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	HG	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	HG	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	08/24/2011	13	1	14
1108447	M	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU36-0002	1108447-003C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	M	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-DUP03-081011	1108447-004C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108447	M	UG/KG	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	M	UG/KG	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	08/23/2011	09/08/2011	13	16	29
1108447	M	UG/KG	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	08/23/2011	09/07/2011	13	15	28
1108447	PMOIS	%	IOA-SS-EU49-0002	1108447-008C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU44-0002	1108447-010C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU35-0002	1108447-005C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU46-0002	1108447-002C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU43-0002	1108447-011C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU45-0002	1108447-007C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU47-0002	1108447-001C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU42-0002	1108447-012C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU34-0002	1108447-013C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU48-0002	1108447-009C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU33-0002	1108447-014C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5
1108447	PMOIS	%	IOA-SS-EU23-0002	1108447-006C	NM	08/10/2011	01/01/1999	08/15/2011	-4604	4609	5

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Aluminum			10	0.13	MS
Antimony			0.50	0.034	MS
Arsenic			0.30	0.12	MS
Barium			5.0	0.018	MS
Beryllium			0.20	0.038	MS
Boron			100	0	MS
Cadmium			0.20	0.022	MS
Calcium			200	3.5	MS
Chromium			2.0	0.054	MS
Cobalt			1.0	0.010	MS
Copper			1.0	0.041	MS
Iron			20	1.5	MS
Lead			0.20	0.018	MS
Lithium			50	0	MS
Magnesium			100	35	MS
Manganese			1.0	0.022	MS
Molybdenum			1.0	0.063	MS
Nickel			2.0	0.025	MS
Potassium			100	2.0	MS
Ruthenium			100	0	MS
Selenium			1.0	0.29	MS
Silicon			100	0	MS
Silver			0.30	0.027	MS
Sodium			100	2.9	MS
Strontium			50	0	MS

Comments:

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Thallium			0.40	0.021	MS
Tin			50	0.033	MS
Titanium			10	0.072	MS
Vanadium			0.40	0.023	MS
Zinc			10	0.12	MS
Zirconium			10	0	MS

Comments:

FORM X - IN I1

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

PBS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. Workorder No.: 1108447

Matrix (soil/water): SOIL Lab Sample ID: MB-23321

% Solids: 0.0 Date Received: (Total)

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.036	U		AV

Comments:

FORM I - IN ILM04.1

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU43-0002S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 95.6

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0668		0.0116	J	0.06	93.4		AV

Comments:

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU43-0002SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 95.6

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0683		0.0116	J	0.06	97.7		AV

Comments:

FORM V (Part 1) - IN ILM04.1

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LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Mercury				0.1	0.1		93.7

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

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LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Mercury				0.1	0.1		92.3

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:57:05**
Prep End Date: **8/23/2011 4:00:00 P**

Prep Batch ID: **23326** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23326		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
MB-23326		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
1108447-005C	IOA-SS-EU35-0002	Soil			1.28	0	0	50	39.063	8/23/2011	8/23/2011
1108447-005CMS		Soil			1.28	0	0	50	39.063	8/23/2011	8/23/2011
1108447-005CMSD		Soil			1.29	0	0	50	38.760	8/23/2011	8/23/2011
1108447-001C	IOA-SS-EU47-0002	Soil			1.45	0	0	50	34.483	8/23/2011	8/23/2011
1108447-002C	IOA-SS-EU46-0002	Soil			1.41	0	0	50	35.461	8/23/2011	8/23/2011
1108447-003C	IOA-SS-EU36-0002	Soil			1.34	0	0	50	37.313	8/23/2011	8/23/2011
1108447-004C	IOA-SS-DUP03-08101	Soil			1.46	0	0	50	34.247	8/23/2011	8/23/2011
1108447-006C	IOA-SS-EU23-0002	Soil			1.51	0	0	50	33.113	8/23/2011	8/23/2011
1108447-007C	IOA-SS-EU45-0002	Soil			1.82	0	0	50	27.473	8/23/2011	8/23/2011
1108447-008C	IOA-SS-EU49-0002	Soil			1.31	0	0	50	38.168	8/23/2011	8/23/2011
1108447-009C	IOA-SS-EU48-0002	Soil			1.38	0	0	50	36.232	8/23/2011	8/23/2011
1108447-010C	IOA-SS-EU44-0002	Soil			1.49	0	0	50	33.557	8/23/2011	8/23/2011
1108447-011C	IOA-SS-EU43-0002	Soil			1.58	0	0	50	31.646	8/23/2011	8/23/2011
1108447-012C	IOA-SS-EU42-0002	Soil			1.21	0	0	50	41.322	8/23/2011	8/23/2011
1108447-013C	IOA-SS-EU34-0002	Soil			1.56	0	0	50	32.051	8/23/2011	8/23/2011
1108447-014C	IOA-SS-EU33-0002	Soil			1.63	0	0	50	30.675	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Reagent	1079	1:1Nitric Acid	982	Container-1 of 1	0	mL
Chemical	633	Hydrogen Peroxide 30%w/v	2822	Container-1 of 1	0	mL
Chemical	697	nitric acid	3153	Container-6 of 8	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-3A CATIONS 10000UG/ML	Opened	LCS	5272	Container-1 of 1	0.05	mL
AAC-STD-3A CATIONS 10000UG/ML	Opened	MS	5272	Container-1 of 1	0.05	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:57:05**
Prep End Date: **8/23/2011 4:00:00 P**

Prep Batch ID: **23326** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Prep Factor Units: **mL / g**

Initial Temp: **98 °C** Final Temp **98 °C**

AAC-STD-3A CATIONS 10000UG/ML	Opened	MSD	5272	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	LCS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MSD	5270	Container-1 of 1	0.05	mL

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID: PBS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. Workorder No.: 1108447

Matrix (soil/water): SOIL Lab Sample ID: MB-23326

% Solids: 0.0 Date Received: (Total)

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	0.50	U		MS
7440-36-0	Antimony	0			MS
7440-38-2	Arsenic	0.015	U		MS
7440-39-3	Barium	0.25	U		MS
7440-41-7	Beryllium	0.020	U		MS
7440-43-9	Cadmium	0.010	U		MS
7440-70-2	Calcium	10	U		MS
7440-47-3	Chromium	0.10	U		MS
7440-48-4	Cobalt	0.050	U		MS
7440-50-8	Copper	0.050	U		MS
7439-89-6	Iron	2.0	U		MS
7439-92-1	Lead	0.010	U		MS
7439-95-4	Magnesium	5.0	U		MS
7439-96-5	Manganese	0.050	U		MS
7440-02-0	Nickel	0.10	U		MS
7440-09-7	Potassium	5.0	U		MS
7782-49-2	Selenium	0.050	U		MS
7440-22-4	Silver	0			MS
7440-23-5	Sodium	5.0	U		MS
7440-28-0	Thallium	0.020	U		MS
7440-62-2	Vanadium	0.040	U		MS
7440-66-6	Zinc	0.50	U		MS

Comments:

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU35-0002S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 93.3

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		7782.7604		6509.9379		41.87	OK 3040.3		MS
Antimony	80-120	36.4805		0.0851	J	40.91	89.0		MS
Arsenic	80-120	42.2823		1.1747		41.87	98.2		MS
Barium	80-120	54.7188		11.5372		41.87	103.1		MS
Beryllium	80-120	43.6069		0.3132	J	41.87	103.4		MS
Cadmium	80-120	41.6895		0.1624	J	41.87	99.2		MS
Calcium	80-120	1736.2865		1232.3890		418.65	OK 120.4		MS
Chromium	80-120	48.4599		9.0429		41.87	94.2		MS
Cobalt	80-120	44.5104		3.6473		41.87	97.6		MS
Copper	80-120	47.9023		7.8573		41.87	95.7		MS
Iron		13751.4636		11855.5681		418.65	OK 452.9		MS
Lead	80-120	52.4899		8.2441		41.87	105.7		MS
Magnesium		2744.2641		2306.3446		418.65	104.6		MS
Manganese		339.4439		199.7477		41.87	OK 333.7		MS
Mercury	80-120	0.0500		0.0027	J	0.05	92.6		AV
Nickel	80-120	47.3120		7.6781		41.87	94.7		MS
Potassium	80-120	661.8369		319.8761		418.65	81.7		MS
Selenium	80-120	41.0690		0.8400	U	41.87	98.1		MS
Silver	80-120	40.1081		0.1300	U	40.91	98.0		MS
Sodium	80-120	428.3558		48.9238	J	418.65	90.6		MS
Thallium	80-120	43.9209		0.3300	U	41.87	104.9		MS
Vanadium	80-120	52.7310		11.3246		41.87	98.9		MS
Zinc	80-120	79.3038		32.6650		41.87	111.4		MS

Comments:

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SS-EU35-0002SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 93.3

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		9692.0429		6509.9379		41.54	OL 7660.2		MS
Antimony	80-120	42.5751		0.0851	J	41.54	102.3		MS
Arsenic	80-120	39.4064		1.1747		41.54	92.0		MS
Barium	80-120	53.4173		11.5372		41.54	100.8		MS
Beryllium	80-120	39.3441		0.3132	J	41.54	94.0		MS
Cadmium	80-120	39.0948		0.1624	J	41.54	93.7		MS
Calcium	80-120	2207.5753		1232.3890		415.41	OL 234.8		MS
Chromium	80-120	45.6101		9.0429		41.54	88.0		MS
Cobalt	80-120	43.1368		3.6473		41.54	95.1		MS
Copper	80-120	45.3409		7.8573		41.54	90.2		MS
Iron		18995.4802		11855.5681		415.41	OL 1718.8		MS
Lead	80-120	49.2507		8.2441		41.54	98.7		MS
Magnesium		3995.3155		2306.3446		415.41	OL 406.6		MS
Manganese		342.7446		199.7477		41.54	OL 344.2		MS
Mercury	80-120	0.0521		0.0027	J	0.05	93.7		AV
Nickel	80-120	46.6320		7.6781		41.54	93.8		MS
Potassium	80-120	782.2725		319.8761		415.41	111.3		MS
Selenium	80-120	37.2779		0.8400	U	41.54	89.7		MS
Silver	80-120	44.8092		0.1300	U	41.54	107.9		MS
Sodium	80-120	409.7773		48.9238	J	415.41	86.9		MS
Thallium	80-120	41.3422		0.3300	U	41.54	99.5		MS
Vanadium	80-120	56.9765		11.3246		41.54	109.9		MS
Zinc	80-120	81.5761		32.6650		41.54	117.7		MS

Comments:

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Aluminum				50.0	51.1		102.3
Arsenic				50.0	50.1		100.2
Barium				50.0	50.2		100.4
Beryllium				50.0	50.4		100.7
Cadmium				50.0	46.4		92.8
Calcium				500.0	459.5		91.9
Chromium				50.0	51.1		102.2
Cobalt				50.0	51.5		103.0
Copper				50.0	52.2		104.4
Iron				500.0	572.8		114.6
Lead				50.0	51.0		102.0
Magnesium				500.0	456.6		91.3
Manganese				50.0	52.4		104.7
Nickel				50.0	51.8		103.7
Potassium				500.0	444.9		89.0
Selenium				50.0	48.0		96.0
Sodium				500.0	453.2		90.6
Thallium				50.0	50.6		101.2
Vanadium				50.0	50.5		101.0
Zinc				50.0	49.8		99.7

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

ICP SERIAL DILUTIONS

IOA-SS-EU3

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.:

Matrix (soil/water): SOIL Level (low/med):

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	155497.20		387.07		0.4		MS
Calcium	29437.00		1408.68		4.3		MS
Iron	283183.60		744.65		5.2		MS
Magnesium	55089.64		2798.38		1.6		MS
Manganese	4771.20		12.48		4.6		MS
Potassium	7640.60		411.90	J	7.8		MS
Sodium	1168.60	J	53.88	J	7.8		MS

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:58:02**
Prep End Date: **8/23/2011 1:30:00 P**

Prep Batch ID: **23327** Prep Code: **SW_3050-SA** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23327		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
MB-23327		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
1108447-005C	IOA-SS-EU35-0002	Soil			1.26	0	0	50	39.683	8/23/2011	8/23/2011
1108447-005CMS		Soil			1.31	0	0	50	38.168	8/23/2011	8/23/2011
1108447-005CMSD		Soil			1.29	0	0	50	38.760	8/23/2011	8/23/2011
1108447-001C	IOA-SS-EU47-0002	Soil			1.25	0	0	50	40.000	8/23/2011	8/23/2011
1108447-002C	IOA-SS-EU46-0002	Soil			1.16	0	0	50	43.103	8/23/2011	8/23/2011
1108447-003C	IOA-SS-EU36-0002	Soil			1.17	0	0	50	42.735	8/23/2011	8/23/2011
1108447-004C	IOA-SS-DUP03-08101	Soil			1.1	0	0	50	45.455	8/23/2011	8/23/2011
1108447-006C	IOA-SS-EU23-0002	Soil			1.96	0	0	50	25.510	8/23/2011	8/23/2011
1108447-007C	IOA-SS-EU45-0002	Soil			1.6	0	0	50	31.250	8/23/2011	8/23/2011
1108447-008C	IOA-SS-EU49-0002	Soil			1.49	0	0	50	33.557	8/23/2011	8/23/2011
1108447-009C	IOA-SS-EU48-0002	Soil			1.44	0	0	50	34.722	8/23/2011	8/23/2011
1108447-010C	IOA-SS-EU44-0002	Soil			1.43	0	0	50	34.965	8/23/2011	8/23/2011
1108447-011C	IOA-SS-EU43-0002	Soil			1.33	0	0	50	37.594	8/23/2011	8/23/2011
1108447-012C	IOA-SS-EU42-0002	Soil			1.68	0	0	50	29.762	8/23/2011	8/23/2011
1108447-013C	IOA-SS-EU34-0002	Soil			1.19	0	0	50	42.017	8/23/2011	8/23/2011
1108447-014C	IOA-SS-EU33-0002	Soil			1.38	0	0	50	36.232	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	697	nitric acid	3153	Container-6 of 8	0	mL
Chemical	698	Hydrochloric acid	3156	Container-1 of 6	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 10:58:02**
Prep End Date: **8/23/2011 1:30:00 P**

Prep Factor Units: **mL / g**

Prep Batch ID: **23327** Prep Code: **SW_3050-SA** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

ICPMS AAC-STD-2 1/26/2011	Opened	LCS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MSD	5270	Container-1 of 1	0.05	mL

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INORGANIC ANALYSIS DATA SHEET

CLIENT SAMP ID

PBS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. Workorder No.: 1108447

Matrix (soil/water): SOIL Lab Sample ID: MB-23327

% Solids: 0.0 Date Received: (Total)

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.025	U		MS
7440-22-4	Silver	0.015	U		MS

Comments:

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LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Antimony				50.0	59.6		119.2
Silver				50.0	54.7		109.4

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

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ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108447

Lab Code: GLEN01
Method: AV (Total)

Instrument ID Number: HG2
Test Code: SW 7471S

Start Date: 08/24/2011
End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	A
ZZZZZZ	1.00	1130																X					
ZZZZZZ	1.00	1131																X					
ZZZZZZ	1.00	1132																X					
PBS	1.00	1134																X					
LCSS	1.00	1135																X					
ZZZZZZ	1.00	1137																X					
ZZZZZZ	1.00	1138																X					
ZZZZZZ	1.00	1140																X					
ZZZZZZ	1.00	1141																X					
ZZZZZZ	1.00	1143																X					
ZZZZZZ	1.00	1144																X					
ZZZZZZ	1.00	1146																X					
ZZZZZZ	1.00	1147																X					
ZZZZZZ	1.00	1149																X					
ZZZZZZ	1.00	1150																X					
ZZZZZZ	1.00	1152																X					
ZZZZZZ	1.00	1153																X					
ZZZZZZ	1.00	1154																X					
ZZZZZZ	1.00	1156																X					
ZZZZZZ	1.00	1157																X					
ZZZZZZ	1.00	1159																X					
ZZZZZZ	1.00	1200																X					
ZZZZZZ	1.00	1202																X					
ZZZZZZ	1.00	1203																X					
ZZZZZZ	1.00	1205																X					
ZZZZZZ	1.00	1206																X					
ZZZZZZ	1.00	1208																X					
ZZZZZZ	1.00	1209																X					
ZZZZZZ	1.00	1211																X					
ZZZZZZ	1.00	1212																X					
ZZZZZZ	1.00	1214																X					
-EU47-0002	1.00	1215																X					
ZZZZZZ	1.00	1216																X					
ZZZZZZ	1.00	1220																X					
ZZZZZZ	1.00	1221																X					

FORM XIV - IN

ILM04.1

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ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108447

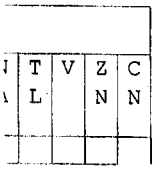
Lab Code: GLEN01
Method: AV (Total)

Instrument ID Number: HG2
Test Code: SW 7471S

Start Date: 08/24/2011
End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
zzzzzz	1.00	1222																X					

FORM XIV - IN



ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108447

Lab Code: GLEN01

Method: AV (Total)

Instrument ID Number: HG2

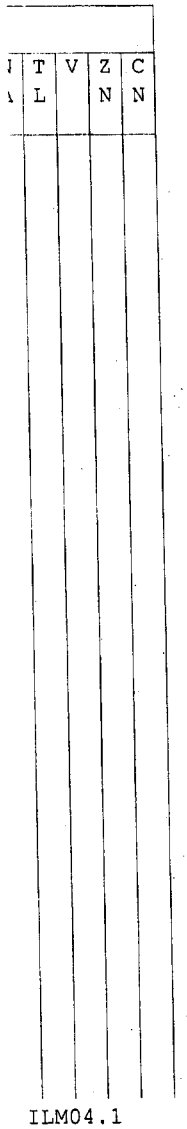
Test Code: SW 7471S

Start Date: 08/24/2011

End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	1326																X					
ZZZZZZ	1.00	1327																X					
ZZZZZZ	1.00	1328																X					
PBS	1.00	1330																X					
LCSS	1.00	1331																X					
-EU35-0002	1.00	1333																X					
EU35-0002S	1.00	1334																X					
U35-0002SD	1.00	1336																X					
ZZZZZZ	1.00	1337																X					
-EU46-0002	1.00	1339																X					
-EU36-0002	1.00	1340																X					
P03-081011	1.00	1342																X					
-EU23-0002	1.00	1343																X					
ZZZZZZ	1.00	1345																X					
ZZZZZZ	1.00	1346																X					
-EU45-0002	1.00	1348																X					
-EU49-0002	1.00	1349																X					
-EU48-0002	1.00	1350																X					
-EU44-0002	1.00	1352																X					
-EU43-0002	1.00	1353																X					
EU43-0002S	1.00	1355																X					
U43-0002SD	1.00	1356																X					
-EU42-0002	1.00	1358																X					
-EU34-0002	1.00	1359																X					
-EU33-0002	1.00	1401																X					
ZZZZZZ	1.00	1402																X					
ZZZZZZ	1.00	1404																X					
PBS	1.00	1428																X					
LCSS	1.00	1430																X					
ZZZZZZ	1.00	1431																X					
ZZZZZZ	1.00	1433																X					
ZZZZZZ	1.00	1434																X					
ZZZZZZ	1.00	1436																X					
ZZZZZZ	1.00	1437																X					
ZZZZZZ	1.00	1439																X					

FORM XIV - IN



ILM04.1

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108447

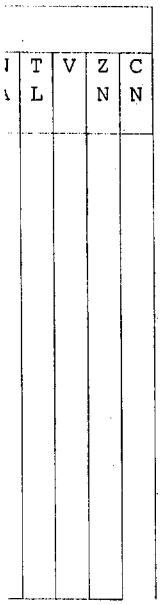
Lab Code: GLEN01
Method: AV (Total)

Instrument ID Number: HG2
Test Code: SW 7471S

Start Date: 08/24/2011
End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
zzzzzz	1.00	1440																X					
zzzzzz	1.00	1441																X					
zzzzzz	1.00	1443																X					
zzzzzz	1.00	1444																X					
zzzzzz	1.00	1446																X					
zzzzzz	1.00	1447																X					
zzzzzz	1.00	1449																X					
zzzzzz	1.00	1450																X					
zzzzzz	1.00	1452																X					
zzzzzz	1.00	1453																X					
zzzzzz	1.00	1455																X					
zzzzzz	1.00	1456																X					
zzzzzz	1.00	1458																X					
zzzzzz	1.00	1459																X					
zzzzzz	1.00	1501																X					
zzzzzz	1.00	1502																X					
zzzzzz	1.00	1505																X					

FORM XIV - IN



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RTI Laboratories - QC SUMMARY REPORT

WO#: 1108447

Date Reported: 10/31/2011

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073 **Test Code:** SW_7471S

Sample ID:	CCV1	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42404	
Client ID:	CCV	Batch ID:	R42404	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821156	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	1.9	30	2.000	0	96.6	90	110					

Sample ID:	CCV2	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42404	
Client ID:	CCV	Batch ID:	R42404	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821168	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	2.0	30	2.000	0	97.6	90	110					

Sample ID:	CCV3	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42404	
Client ID:	CCV	Batch ID:	R42404	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821180	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	2.0	30	2.000	0	101	90	110					

Sample ID:	CCV4	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42404	
Client ID:	CCV	Batch ID:	R42404	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821189	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	1.9	30	2.000	0	97.4	90	110					

Sample ID:	CCV1	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42418	
Client ID:	CCV	Batch ID:	R42418	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821301	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	1.9	30	2.000	0	95.4	90	110					

Sample ID:	CCV2	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42418	
Client ID:	CCV	Batch ID:	R42418	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821314	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual	
Mercury	1.9	30	2.000	0	94.2	90	110					

RTI Laboratories - QC SUMMARY REPORT

WO#: 1108447

Date Reported: 10/31/2011

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073 **Test Code:** SW_7471S

Sample ID:	CCV5	Samp Type:	CCV	Test Code:	SW_7471S	Units:	µg/Kg	Prep Date:		RunNo:	42418	
Client ID:	CCV	Batch ID:	R42418	TestNo:	SW7471A			Analysis Date:	8/24/2011	SeqNo:	821350	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Mercury	2.0	30	2.000	0	102	90	110				

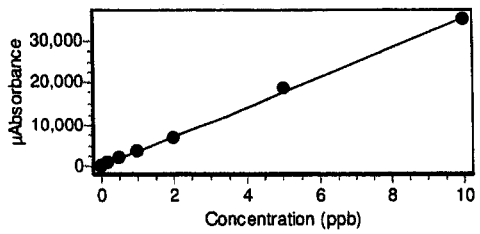
Report Generated By CETAC QuickTrace
Analyst: Administrator
Worksheet file: H:\8 AUGUST 2011\082411 7471S.wsz
Date Started: 5/10/2011 10:58:17 AM
Comment:

Results

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD
Calibration Blank					STD	08/24/11 11:17:03 am	0.000	101	21.97
Replicates	130.8	78.8	103.1	91.4					
Standard #1 (0.20ppb)					STD	08/24/11 11:18:30 am	0.200	858	1.53
Replicates	868.7	866.5	855.9	840.0					
Standard #2 (0.50ppb)					STD	08/24/11 11:19:56 am	0.500	1903	0.85
Replicates	1912.0	1920.8	1886.7	1892.2					
Standard #3 (1.00ppb)					STD	08/24/11 11:21:23 am	1.000	3695	0.59
Replicates	3720.3	3690.5	3668.0	3702.7					
Standard #4 (2.00ppb)					STD	08/24/11 11:22:50 am	2.000	6832	0.12
Replicates	6828.1	6842.5	6832.2	6823.8					
Standard #5 (5.00ppb)					STD	08/24/11 11:24:17 am	5.000	18488	0.10
Replicates	18467.4	18509.9	18496.4	18477.0					
Standard #6 (10.0ppb)					STD	08/24/11 11:25:45 am	10.000	35004	0.26
Replicates	34872.6	35025.1	35055.6	35064.1					

Calibration

Equation: A = 166.949 + 3514.019C
R2: 0.99920
SEE: 398.0656
Flags:



CCV					CCV	08/24/11 11:30:05 am	1.933	6959	0.26
Replicates	6966.7	6939.4	6950.4	6980.6					
% Recovery	96.65								

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCB				CCB	08/24/11 11:31:32 am	-0.041	23	67.14
Replicates	36.3	30.7	1.0	24.2				
CRQL				UNK	08/24/11 11:32:58 am	0.201	875	1.68
Replicates	881.0	852.8	884.7	880.5				
MB-23321				UNK	08/24/11 11:34:24 am	-0.025	81	25.38
Replicates	100.1	70.0	95.4	57.2				
LCS-23321				UNK	08/24/11 11:35:51 am	0.937	3459	0.46
Replicates	3435.9	3464.9	3471.8	3463.8				
1108425-007C				UNK	08/24/11 11:37:17 am	0.351	1400	0.66
Replicates	1388.1	1409.9	1398.1	1402.9				
1108425-007CMS				UNK	08/24/11 11:38:44 am	1.386	5036	0.38
Replicates	5054.8	5013.6	5027.6	5048.9				
1108425-007CMSD				UNK	08/24/11 11:40:11 am	1.216	4442	0.32
Replicates	4426.9	4448.3	4433.3	4458.4				
1108425-001C				UNK	08/24/11 11:41:39 am	0.347	1385	0.37
Replicates	1378.1	1388.3	1389.1	1386.3				
1108425-002C				UNK	08/24/11 11:43:07 am	0.128	618	1.36
Replicates	619.5	615.2	607.7	627.9				
1108425-003C				UNK	08/24/11 11:44:40 am	0.203	878	4.56
Replicates	874.8	871.5	932.3	835.3				
1108425-004B				UNK	08/24/11 11:46:09 am	0.137	647	4.61
Replicates	621.8	672.3	672.6	619.8				
CCV				CCV	08/24/11 11:47:36 am	1.951	7024	0.13
Replicates	7023.3	7029.8	7030.6	7011.1				
% Recovery	97.56							

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCB				CCB	08/24/11 11:49:04 am	-0.047	1	288.59
Replicates	15.9	5.8	-19.2	2.1				
1108425-005C				UNK	08/24/11 11:50:33 am	0.108	548	4.39
Replicates	573.4	527.6	563.9	527.4				
1108425-006C				UNK	08/24/11 11:52:02 am	0.040	308	11.91
Replicates	295.9	345.2	327.2	261.9				
1108425-010C				UNK	08/24/11 11:53:28 am	0.705	2645	2.51
Replicates	2588.3	2596.1	2668.4	2728.9				
1108425-011C				UNK	08/24/11 11:54:54 am	0.168	758	2.08
Replicates	736.3	755.0	768.1	770.6				
1108425-013C				UNK	08/24/11 11:56:20 am	0.022	245	4.59
Replicates	247.8	238.2	233.5	258.9				
1108425-008C				UNK	08/24/11 11:57:47 am	0.117	577	3.24
Replicates	601.5	558.3	567.6	580.8				
1108425-008CMS				UNK	08/24/11 11:59:20 am	1.069	3922	0.84
Replicates	3881.5	3912.6	3933.6	3959.8				
1108425-008CMSD				UNK	08/24/11 12:00:47 pm	1.036	3806	0.42
Replicates	3808.3	3820.8	3810.3	3783.5				
1108425-014C				UNK	08/24/11 12:02:14 pm	2.432	8713	0.19
Replicates	8712.7	8735.0	8695.8	8706.8				
1108425-015B				UNK	08/24/11 12:03:42 pm	1.167	4268	0.83
Replicates	4242.7	4235.0	4309.9	4286.2				
CCV				CCV	08/24/11 12:05:10 pm	2.023	7275	0.29
Replicates	~~7265.9~~	7304.4	7254.5	7274.4				
% Recovery	101.14							

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCB				CCB	08/24/11 12:06:38 pm	-0.046 ✓	4	513.57
Replicates	31.5	-7.4	-9.8	0.6				
1108425-016C				UNK	08/24/11 12:08:06 pm	0.144	672	1.51
Replicates	675.2	684.4	670.2	660.0				
1108425-017C				UNK	08/24/11 12:09:34 pm	0.120	588	1.84
Replicates	597.5	578.6	596.9	578.4				
1108425-018C				UNK	08/24/11 12:11:03 pm	0.426	1663	1.41
Replicates	1633.9	1657.0	1689.2	1671.5				
1108425-019C				UNK	08/24/11 12:12:32 pm	0.342	1367	0.67
Replicates	1355.6	1371.3	1365.6	1377.3				
1108425-020C				UNK	08/24/11 12:14:03 pm	0.209	903	2.20
Replicates	899.1	919.9	917.1	876.9				
1108447-001C				UNK	08/24/11 12:15:30 pm	0.045	326	6.93
Replicates	349.3	336.5	323.7	296.4				
1108687-014B				UNK	08/24/11 12:16:56 pm	0.175	782	3.44
Replicates	774.1	822.2	763.0	770.2				
CCV				CCV	08/24/11 12:20:03 pm	1.948	7012	0.47
Replicates	6967.9	7026.4	7044.8	7008.6				
% Recovery	97.40 ✓							
CCB				CCB	08/24/11 12:21:31 pm	-0.034 ✓	48	27.86
Replicates	33.5	41.0	56.3	62.8				
CRQL				UNK	08/24/11 12:22:57 pm	0.195	853	5.08
Replicates	819.5	811.8	897.8	881.4				

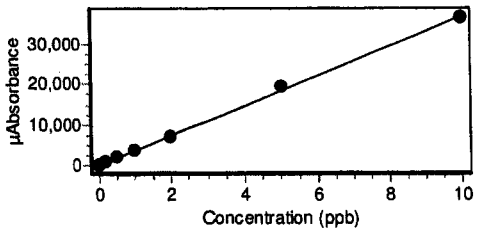
Report Generated By CETAC QuickTrace
Analyst: Administrator
Worksheet file: H:\8 AUGUST 2011\082411B 7471S.wsz
Date Started: 5/10/2011 10:58:17 AM
Comment:

Results

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
Calibration Blank				STD	08/24/11 01:14:07 pm	0.000	138	12.14
Replicates	149.2	113.7	149.1	138.7				
Standard #1 (0.20ppb)				STD	08/24/11 01:15:34 pm	0.200	831	3.35
Replicates	809.9	815.5	826.0	871.1				
Standard #2 (0.50ppb)				STD	08/24/11 01:17:00 pm	0.500	1991	1.19
Replicates	1965.7	2022.0	1983.0	1994.7				
Standard #3 (1.00ppb)				STD	08/24/11 01:18:27 pm	1.000	3887	1.41
Replicates	3814.6	3879.7	3913.2	3941.6				
Standard #4 (2.00ppb)				STD	08/24/11 01:19:54 pm	2.000	7060	0.53
Replicates	7035.3	7036.3	7053.8	7114.1				
Standard #5 (5.00ppb)				STD	08/24/11 01:21:21 pm	5.000	19120	0.93
Replicates	19380.3	19080.2	19035.8	18982.7				
Standard #6 (10.0ppb)				STD	08/24/11 01:22:48 pm	10.000	36538	0.16
Replicates	36453.8	36539.5	36566.0	36591.1				

Calibration

Equation: A = 150.851 + 3663.538C
R2: 0.99938
SEE: 365.7948
Flags:



CCV				CCV	08/24/11 01:26:05 pm	1.909	7146	0.40
Replicates	~~7486.7~~	7173.9	7157.7	7143.9				
% Recovery	95.46							

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCB				CCB	08/24/11 01:27:33 pm	-0.025	58	24.39
Replicates	49.7	53.9	78.9	49.2				
CRQL				UNK	08/24/11 01:28:59 pm	0.196	868	1.96
Replicates	878.2	868.1	880.7	843.4				
MB-23335				UNK	08/24/11 01:30:25 pm	-0.024	64	26.66
Replicates	85.8	68.4	52.1	48.8				
LCS-23335				UNK	08/24/11 01:31:51 pm	0.923	3532	0.66
Replicates	3503.5	3554.9	3546.4	3522.6				
1108447-005C				UNK	08/24/11 01:33:18 pm	0.052	340	2.59
Replicates	350.2	329.5	343.3	337.3				
1108447-005CMS				UNK	08/24/11 01:34:45 pm	0.980	3740	0.18
Replicates	3732.9	3745.0	3745.8	3735.5				
1108447-005CMSD				UNK	08/24/11 01:36:12 pm	0.989	3776	0.35
Replicates	3779.2	3785.5	3781.7	3756.5				
1108425-009A				UNK	08/24/11 01:37:39 pm	0.039	293	7.98
Replicates	268.8	301.0	280.6	322.0				
1108447-002C				UNK	08/24/11 01:39:07 pm	0.846	3249	0.31
Replicates	3236.5	3245.8	3251.6	3260.8				
1108447-003C				UNK	08/24/11 01:40:41 pm	0.421	1693	1.17
Replicates	1690.1	1716.5	1668.7	1698.2				
1108447-004C				UNK	08/24/11 01:42:09 pm	0.780	3009	0.76
Replicates	2979.2	3026.4	3002.0	3027.0				
1108447-006C				UNK	08/24/11 01:43:38 pm	0.411	1656	0.88
Replicates	1657.0	1671.2	1658.5	1635.8				

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCV				CCV	08/24/11 01:45:06 pm	1.883	7051	1.10
Replicates	~~6985.4~~	7006.4	7051.9	7159.1				
% Recovery	94.17							
CCB				CCB	08/24/11 01:46:34 pm	-0.041	1	996.97
Replicates	-14.9	-24.3	35.2	6.7				
1108447-007C				UNK	08/24/11 01:48:03 pm	1.186	4496	17.37
Replicates	3686.6	4036.7	4845.9	5413.1				
1108447-008C				UNK	08/24/11 01:49:29 pm	0.031	265	6.11
Replicates	269.7	240.9	277.6	270.1				
1108447-009C				UNK	08/24/11 01:50:55 pm	0.029	259	3.67
Replicates	249.3	256.0	257.0	271.8				
1108447-010C				UNK	08/24/11 01:52:21 pm	0.149	698	3.69
Replicates	677.2	698.8	734.0	681.8				
1108447-011C				UNK	08/24/11 01:53:48 pm	0.199	879	2.95
Replicates	863.6	873.1	861.0	916.6				
1108447-011CMS				UNK	08/24/11 01:55:20 pm	1.129	4289	0.93
Replicates	4236.0	4330.8	4285.8	4301.8				
1108447-011CMSD				UNK	08/24/11 01:56:48 pm	1.176	4457	0.76
Replicates	4418.6	4451.0	4500.9	4459.0				
1108447-012C				UNK	08/24/11 01:58:15 pm	0.299	1245	1.25
Replicates	1258.2	1256.6	1225.8	1238.0				
1108447-013C				UNK	08/24/11 01:59:43 pm	0.067	398	5.08
Replicates	423.8	385.8	402.3	378.1				
1108447-014C				UNK	08/24/11 02:01:11 pm	0.092	486	4.55
Replicates	470.6	464.6	500.8	509.6				

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD
CCV				CCV	08/24/11 02:02:39 pm	1.917	7173	0.21
Replicates	7187.7	7165.1	7183.3	7154.9				
% Recovery	95.83							
CCB				CCB	08/24/11 02:04:07 pm	-0.029	46	38.11
Replicates	41.4	58.4	61.2	23.2				
MB-23336				UNK	08/24/11 02:28:50 pm	-0.030	40	26.69
Replicates	30.2	52.1	44.4	31.4				
LCS-23336				UNK	08/24/11 02:30:19 pm	0.971	3710	0.31
Replicates	3721.0	3714.2	3708.7	3694.2				
1108481-016B				UNK	08/24/11 02:31:48 pm	0.256	1089	2.01
Replicates	1087.1	1120.1	1078.6	1070.1				
1108481-016BMS				UNK	08/24/11 02:33:14 pm	1.221	4624	0.49
Replicates	4622.4	4620.9	4599.5	4654.4				
1108481-016BMSD				UNK	08/24/11 02:34:40 pm	1.206	4570	0.54
Replicates	4602.6	4574.0	4557.8	4545.0				
1108481-003C				UNK	08/24/11 02:36:06 pm	0.008	181	8.62
Replicates	161.0	199.2	182.0	181.3				
1108481-004C				UNK	08/24/11 02:37:33 pm	0.612	2392	0.58
Replicates	2401.0	2381.9	2407.0	2379.0				
1108481-005C				UNK	08/24/11 02:39:00 pm	0.034	275	6.64
Replicates	291.5	253.1	288.5	266.8				
1108481-007C				UNK	08/24/11 02:40:27 pm	0.330	1359	0.40
Replicates	1354.5	1359.1	1367.1	1357.0				
1108481-008B				UNK	08/24/11 02:41:54 pm	-0.023	65	47.42
Replicates	84.9	19.9	84.7	70.4				

2B
CRDL STANDARD FOR AA AND ICP

See Raw Data

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source:

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.0	0.00	97.5					
Mercury	0.0	0.00	100.5					

2B
CRDL STANDARD FOR AA AND ICP

See Raw Data

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source:

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.0	0.00	98.0					
Mercury	0.0	0.00	98.0					

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

See Raw Data

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42404 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23321 Prepa-ration Blank	C
Mercury	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.036	U

FORM III - IN

ANALYSIS RUN LOG

Lab Name: RTI Laboratories Workorder No.: 1108447

Lab Code: GLEN01 Method: MS (Total)

Instrument ID Number: ICPMS3 Test Code: SW 6020S

Start Date: 09/07/2011 End Date: 09/07/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	A
ZZZZZZ	1.00	0858		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0901		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0904		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0906		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0908		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0912		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0915		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
LCSS	20.00	0936				X	X	X	X		X	X	X		X				X		X		
EU35-0002S	20.00	0938				X	X	X	X		X	X	X		X				X		X		
PBS	1.00	0943		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
-EU35-0002	20.00	0945				X	X	X	X		X	X	X		X				X		X		
-EU47-0002	20.00	0947				X	X	X	X		X	X	X		X				X		X		
-EU46-0002	20.00	0949				X	X	X	X		X	X	X		X				X		X		
-EU36-0002	20.00	0951				X	X	X	X		X	X	X		X				X		X		
P03-081011	20.00	0952				X	X	X	X		X	X	X		X				X		X		
U35-0002SD	20.00	1000				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ	1.00	1009		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1011		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
-EU23-0002	20.00	1013				X	X	X	X		X	X	X		X				X		X		
-EU45-0002	20.00	1015				X	X	X	X		X	X	X		X				X		X		
-EU49-0002	20.00	1016				X	X	X	X		X	X	X		X				X		X		
-EU48-0002	20.00	1018				X	X	X	X		X	X	X		X				X		X		
-EU44-0002	20.00	1020				X	X	X	X		X	X	X		X				X		X		
-EU43-0002	20.00	1021				X	X	X	X		X	X	X		X				X		X		
-EU42-0002	20.00	1023				X	X	X	X		X	X	X		X				X		X		
-EU34-0002	20.00	1024				X	X	X	X		X	X	X		X				X		X		
-EU33-0002	20.00	1026				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ	1.00	1028		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1032		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1055		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1107		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1118		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1119								X						X				X			X
LCSS	20.00	1120								X						X				X			X

FORM XIV - IN

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108447

Lab Code: GLEN01
Method: MS (Total)

Instrument ID Number: ICPMS3
Test Code: SW 6020S

Start Date: 09/07/2011
End Date: 09/07/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
EU35-0002S	20.00	1121								X						X				X			X
U35-0002SD	20.00	1122								X						X				X			X
-EU35-0002	20.00	1124								X						X				X			X
-EU47-0002	20.00	1124								X						X				X			X
-EU46-0002	20.00	1125								X						X				X			X
-EU36-0002	20.00	1126								X						X				X			X
P03-081011	20.00	1127								X						X				X			X
EU35-0002L	100.00	1131								X						X				X			X
ZZZZZZ	1.00	1133								X						X				X			X
ZZZZZZ	1.00	1137								X						X				X			X
-EU23-0002	20.00	1138								X						X				X			X
-EU45-0002	20.00	1139								X						X				X			X
-EU49-0002	20.00	1140								X						X				X			X
-EU48-0002	20.00	1141								X						X				X			X
-EU44-0002	20.00	1141								X						X				X			X
-EU43-0002	20.00	1142								X						X				X			X
-EU42-0002	20.00	1143								X						X				X			X
-EU34-0002	20.00	1144								X						X				X			X
-EU33-0002	20.00	1145								X						X				X			X
ZZZZZZ	1.00	1148								X						X				X			X
ZZZZZZ	1.00	1150								X						X				X			X
ZZZZZZ	1.00	1152								X						X				X			X
ZZZZZZ	1.00	1201		X										X			X						
ZZZZZZ	1.00	1203		X										X			X						
PBS	1.00	1204		X										X			X						
LCSS	20.00	1205		X										X			X						
EU35-0002S	400.00	1206		X										X			X						
U35-0002SD	400.00	1207		X										X			X						
-EU35-0002	400.00	1210		X										X			X						
-EU47-0002	400.00	1211		X										X			X						
-EU46-0002	400.00	1212		X										X			X						
-EU36-0002	400.00	1213		X										X			X						
P03-081011	400.00	1213		X										X			X						
EU35-0002L	2000.00	1221		X										X			X						
ZZZZZZ	1.00	1225		X										X			X						

FORM XIV - IN

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories | Workorder No.: 1108447

Lab Code: GLEN01 | Method: MS (Total)

Instrument ID Number: ICPMS3 | Test Code: SW 6020S

Start Date: 09/07/2011 | End Date: 09/07/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	1231		X										X			X						
-EU23-0002	400.00	1234		X										X			X						
-EU45-0002	400.00	1235		X										X			X						
-EU49-0002	400.00	1235		X										X			X						
-EU48-0002	400.00	1236		X										X			X						
-EU44-0002	400.00	1237		X										X			X						
-EU43-0002	400.00	1238		X										X			X						
-EU42-0002	400.00	1239		X										X			X						
-EU34-0002	400.00	1240		X										X			X						
← -EU33-0002	400.00	1240		X										X			X						
ZZZZZZ	1.00	1248		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1252		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1255		X										X			X						
ZZZZZZ	1.00	1256		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X

FORM XIV - IN

Instrument Tuning Report

File Name: Default.tun
File Path: C:\Elandata\Tuning\Default.tun

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	9.025	2018	2086	0.710	
Mg	23.985	23.975	5634	2115	0.749	
Co	58.933	58.925	14095	2188	0.740	
In	114.904	114.925	27640	2318	0.741	
Ba	137.905	137.925	33228	2375	0.783	
Ce	139.905	139.875	33676	2370	0.764	
Pb	207.977	207.975	50189	2537	0.745	

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\090711\
Report Date/Time: Wednesday, September 07, 2011 15:23:57

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description	
	Blank	08:53:57 Wed 07-Sep-11	Blank	C:\Elandata\DataSet\090711\Blank.001		
	Standard 1	08:55:52 Wed 07-Sep-11	Standard #1	C:\Elandata\DataSet\090711\Standard 1.002		
SW_6020S,IC	ICV-01	08:58:42 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICV-01.003		
SW_6020S,IC	ICB-01	09:01:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICB-01.004		
SW_6020S,CF	CRQL-6A	09:04:03 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-6A.005		
SW_6020S,IC	ICSA	09:06:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSA.006		
SW_6020S,IC	ICSAB	09:08:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\ICSAB.007		
SW_6020S,C	CCCV	09:12:28 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV .008		
SW_6020S,C	CCCB	09:15:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB .009		
SW_6020S,LC	LCS-23326	09:36:04 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,MS	1108447-005CM	09:38:29 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		I
SW_6020S,MS	1108447-005CM	09:40:53 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		12
SW_6020S,MB	MB-23326	09:43:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23326.013		
SW_6020S,SA	1108447-005C	09:45:55 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-001C	09:47:31 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-002C	09:49:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-003C	09:51:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-004C	09:52:57 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,MS	1108447-005CM	10:00:52 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		19
SW_6020S,C	CCCV-01	10:09:26 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-01.020		
SW_6020S,C	CCCB-01	10:11:59 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-01.021		
SW_6020S,SA	1108447-006C	10:13:36 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-007C	10:15:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-008C	10:16:50 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-009C	10:18:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-010C	10:20:01 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-011C	10:21:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-012C	10:23:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-013C	10:24:49 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-014C	10:26:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,C	CCCV-02	10:28:02 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-02.031		
SW_6020S,C	CCCB-02	10:32:41 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-02.032		
SW_6020S,CF	CRQL-02	10:55:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-02.034		
SW_6020S,SA	CHK.STD	10:58:38 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CHK.STD.035		
SW_6020S,C	CCCV-03	11:07:56 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-03.036		
SW_6020S,C	CCCB-03	11:18:37 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-03.037		
SW_6020S,MB	MB-23326	11:19:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23326.038		
SW_6020S,LC	LCS-23326	11:20:40 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,MS	1108447-005CM	11:21:30 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		)
SW_6020S,MS	1108447-005CM	11:22:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		41
SW_6020S,SA	1108447-005C	11:24:02 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-001C	11:24:52 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-002C	11:25:42 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		
SW_6020S,SA	1108447-003C	11:26:32 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20		

SW_6020S,SA1108447-004C	11:27:23 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-005CS	11:31:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X100	
SW_6020S,CCCCV-04	11:33:52 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-04.048	
SW_6020S,CCCCB-04	11:37:07 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-04.049	
SW_6020S,SA1108447-006C	11:38:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-007C	11:39:26 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-008C	11:40:16 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-009C	11:41:06 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-010C	11:41:55 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-011C	11:42:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-012C	11:43:34 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-013C	11:44:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108447-014C	11:45:14 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,CCCCV-05	11:48:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-05.059	
SW_6020S,CCCCB-05	11:50:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-05.060	
SW_6020S,CRCRQL-05	11:52:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-05.061	
SW_6020S,CCCCV-06	12:01:14 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-06.062	
SW_6020S,CCCCB-06	12:03:57 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-06.063	
SW_6020S,MBMB-23326	12:04:46 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23326.064	
SW_6020S,LCLCS-23326	12:05:36 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,MS1108447-005CM	12:06:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	3
SW_6020S,MS1108447-005CM	12:07:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	37
SW_6020S,SA1108447-005C	12:10:33 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-001C	12:11:23 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-002C	12:12:13 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-003C	12:13:03 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-004C	12:13:54 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SD1108447-005CS	12:21:45 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X2000	73
SW_6020S,CCCCV-07	12:25:59 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-07.074	
SW_6020S,CCCCB-07	12:31:46 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-07.075	
SW_6020S,SA1108447-006C	12:34:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-007C	12:35:05 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-008C	12:35:56 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-009C	12:36:45 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-010C	12:37:35 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-011C	12:38:24 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-012C	12:39:14 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-013C	12:40:04 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,SA1108447-014C	12:40:54 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X400	
SW_6020S,CCCCV-08	12:48:45 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-08.085	
SW_6020S,CCCCB-08	12:52:19 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-08.086	
SW_6020S,CRCRQL-08	12:55:25 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-08.087	
SW_6020S,SACHK.STD	12:56:29 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CHK.STD.088	
SW_6020S,CCCCV-09	13:22:08 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-09.089	
SW_6020S,CCCCB-09	13:24:32 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-09.090	
SW_6020S,MBMB-23485	13:26:39 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23485.091	
SW_6020S,LCLCS-23485	13:28:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,MS1108B18-001AM	13:31:46 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	3
SW_6020S,MS1108B18-001AM	13:37:30 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	4
SW_6020S,MS1108B18-001AM	13:39:04 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	95
SW_6020S,SA1108B18-001A	13:42:39 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1108B18-001A	13:45:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X200	
SW_6020S,SD1108B18-001AS	13:48:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X1000	1
SW_6020S,SA1108A62-001A	13:51:12 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,CCCCV-10	13:56:33 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-10.100	
SW_6020S,CCCCB-10	13:58:54 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-10.101	

SW_6020S,CFCRQL-10	14:02:47 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-10.103	
SW_6020A,MBMB-23517	14:08:22 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23517.104	
SW_6020A,LCLCS-23517	14:09:53 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020A,MS1108B82-001AM	14:12:51 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	3
SW_6020A,MS1108B82-001AM	14:15:12 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	07
SW_6020A,SA1108B82-001A	14:17:28 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020A,SA1109119-001A	14:18:59 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020S,SA1109057-001B	14:22:22 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1109057-002B	14:23:54 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1109057-003B	14:25:26 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,CCCCV-11	14:28:21 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-11.113	
SW_6020S,CCCCB-11	14:30:34 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-11.114	
SW_6020S,CFCRQL-11	14:36:47 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-11.115	
SW_6020S,SA1109038-001C	14:39:21 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1109038-002C	14:40:38 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1109038-003C	14:41:54 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020S,SA1109038-004C	14:43:09 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020A,MBMB-23515	14:49:44 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\MB-23515.120	
SW_6020A,LCLCS-23515	14:51:33 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	
SW_6020A,MS1108B21-001AM	14:53:50 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	2
SW_6020A,MS1108B21-001AM	14:57:47 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X20	23
SW_6020A,SA1108B21-001A	15:00:20 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\0907X10	
SW_6020A,CCCCV-12	15:15:19 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCV-12.125	
SW_6020A,CCCCB-12	15:17:15 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CCB-12.126	
SW_6020A,CFCRQL-12	15:20:57 Wed 07-Sep-11	Sample	C:\Elandata\DataSet\090711\CRQL-12.128	

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

See Raw Data

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum	50	49	99	50	47	95	0	0	MS
Antimony	50	0	0	50	0	0	0	0	MS
Arsenic	50	51	102	50	46	93	49	99	MS
Barium	50	52	103	50	48	96	49	99	MS
Beryllium	50	52	103	50	49	98	51	102	MS
Cadmium	50	46	92	50	47	94	48	95	MS
Calcium	5000	4700	95	4000	3800	94	0	0	MS
Chromium	50	48	97	50	49	98	50	100	MS
Cobalt	50	49	97	50	50	100	51	102	MS
Copper	50	48	95	50	49	99	50	101	MS
Iron	5000	5200	104	4000	4200	105	0	0	MS
Lead	50	50	101	50	48	96	51	103	MS
Magnesium	5000	4900	98	4000	3800	96	0	0	MS
Manganese	50	49	98	50	50	100	0	0	MS
Nickel	50	49	98	50	50	100	51	101	MS
Potassium	5000	4800	96	4000	3800	95	0	0	MS
Selenium	50	52	104	50	46	92	50	100	MS
Silver	50	0	0	50	0	0	0	0	MS
Sodium	5000	4900	99	4000	3700	94	0	0	MS
Thallium	50	50	100	50	48	97	51	102	MS
Vanadium	50	49	98	50	48	97	49	99	MS
Zinc	50	53	106	50	48	96	51	101	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

Method 200.8 - Summary Report

Sample ID: CCV
Sample Date/Time: Wednesday, September 07, 2011 09:12:28
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\epa200.8\no eq as,se\1epa200a no ag,sbnoeq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCV .008

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	28541.406	1.429	28541.406			ug/L
	Be	9	13054.033	1.029	0.457	49.186	2.3	ug/L
	Al	27	191086.845	0.955	0.585	47.374	1.1	ug/L
>	Sc	45	324821.479	1.654	324821.479			ug/L
	V	51	480768.640	0.886	1.477	48.379	1.3	ug/L
	Cr	52	420920.018	1.457	1.273	48.902	1.0	ug/L
	Cr	53	53897.321	1.470	0.150	49.522	0.9	ug/L
	Mn	55	648164.053	0.851	1.994	50.164	1.9	ug/L
	Co	59	569842.080	1.890	1.755	50.223	3.0	ug/L
	Ni	60	126298.917	2.320	0.389	50.166	3.6	ug/L
	Cu	63	297771.680	2.659	0.916	49.445	4.1	ug/L
	Cu	65	146236.597	2.467	0.450	49.369	3.7	ug/L
	Zn	66	88114.443	2.238	0.164	47.854	0.7	ug/L
	Zn	67	15697.545	2.089	0.028	47.374	1.6	ug/L
	Zn	68	65773.777	1.322	0.122	47.168	0.5	ug/L
>	Ge	72	534622.618	1.536	534622.618			ug/L
	As	75	100081.369	2.076	0.186	46.421	1.2	ug/L
	Se	77	7620.528	2.844	0.014	45.920	1.4	ug/L
	Se	82	9321.523	4.763	0.017	46.091	3.5	ug/L
	Y	89	702162.167	0.479	-27723.795			ug/L
	Mo	98	259826.700	2.540	0.327	46.609	2.3	ug/L
	Cd	111	121996.631	1.582	0.154	47.068	1.4	ug/L
	Cd	114	278432.262	0.852	0.351	47.503	1.0	ug/L
>	In	115	792060.552	0.592	792060.552			ug/L
	Ba	137	156232.284	1.597	0.174	47.757	1.1	ug/L
>	Tb	159	895821.475	0.534	895821.475			ug/L
	Tl	203	308783.077	2.778	0.345	48.966	2.3	ug/L
	Tl	205	743050.196	2.070	0.829	48.309	1.5	ug/L
	Pb	208	994722.383	1.808	1.110	47.959	1.3	ug/L
	Na	23	14670058.952	2.350	45.136	3743.167	3.5	ug/L
	Mg	24	9961967.675	1.990	30.675	3820.183	3.2	ug/L
	K	39	33593879.089	3.242	101.128	3797.263	5.0	ug/L
	Ca	43	70260.603	2.775	0.215	3764.079	4.0	ug/L
	Ca	44	1185591.751	2.378	3.516	4096.860	3.8	ug/L
	Fe	54	2533616.330	1.304	7.686	3863.922	2.8	ug/L
	Fe	57	1134957.216	1.104	3.467	4215.551	2.0	ug/L
>	Sc-1	45	324821.479	1.654	324821.479			ug/L

Method 200.8 - Summary Report

Sample ID: CCV-01
Sample Date/Time: Wednesday, September 07, 2011 10:09:26
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-01.020

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	27886.707	0.627	27886.707			ug/L
	Be	9	13278.358	1.105	0.476	51.200	1.7	ug/L
>	Sc	45	305207.162	1.132	305207.162			ug/L
	V	51	462025.554	0.777	1.511	49.484	1.8	ug/L
	Cr	52	404990.407	0.178	1.304	50.099	1.3	ug/L
	Cr	53	50429.514	1.744	0.149	49.289	1.3	ug/L
	Co	59	541934.710	1.063	1.775	50.819	0.1	ug/L
	Ni	60	119661.827	1.400	0.392	50.568	1.0	ug/L
	Cu	63	285007.482	1.702	0.932	50.345	0.8	ug/L
	Cu	65	143047.434	1.236	0.468	51.382	0.4	ug/L
	Zn	66	86690.067	1.011	0.173	50.616	1.8	ug/L
	Zn	67	14982.337	1.367	0.029	48.642	2.0	ug/L
	Zn	68	64646.383	0.823	0.129	49.836	0.6	ug/L
>	Ge	72	497525.958	1.123	497525.958			ug/L
	As	75	99254.230	0.552	0.199	49.487	1.2	ug/L
	Se	77	7734.622	0.733	0.015	50.223	1.5	ug/L
	Se	82	9415.748	2.381	0.019	50.056	3.4	ug/L
	Y	89	677828.705	1.427	-52057.256			ug/L
	Cd	111	120229.202	0.792	0.155	47.644	1.1	ug/L
	Cd	114	275681.395	1.061	0.357	48.304	0.8	ug/L
>	In	115	771225.148	0.881	771225.148			ug/L
	Ba	137	154231.235	1.226	0.180	49.379	1.1	ug/L
>	Tb	159	855332.611	0.589	855332.611			ug/L
	Tl	205	750066.677	1.406	0.877	51.075	0.9	ug/L
	Tl	203	313642.813	0.574	0.367	52.097	0.7	ug/L
	Pb	208	1018797.488	0.631	1.191	51.451	0.9	ug/L

Method 200.8 - Summary Report

Sample ID: CCV-02
Sample Date/Time: Wednesday, September 07, 2011 10:28:02
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-02.031

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	26637.642	1.518	26637.642			ug/L
	Be	9	12529.296	1.217	0.470	50.587	2.7	ug/L
>	Sc	45	297629.807	0.773	297629.807			ug/L
	V	51	454615.076	0.978	1.524	49.928	1.6	ug/L
	Cr	52	395504.402	1.311	1.306	50.172	1.9	ug/L
	Cr	53	49014.473	1.821	0.149	49.114	2.6	ug/L
	Co	59	530190.451	2.355	1.781	50.991	3.1	ug/L
	Ni	60	117431.699	1.457	0.394	50.894	2.2	ug/L
	Cu	63	279431.573	2.747	0.938	50.628	3.5	ug/L
	Cu	65	141251.729	1.490	0.474	52.034	2.0	ug/L
	Zn	66	87352.352	0.808	0.177	51.566	0.5	ug/L
	Zn	67	15036.426	0.974	0.029	49.381	0.9	ug/L
	Zn	68	64747.098	0.894	0.131	50.469	0.7	ug/L
>	Ge	72	492076.594	0.313	492076.594			ug/L
	As	75	97248.264	2.521	0.197	49.016	2.2	ug/L
	Se	77	7538.459	2.706	0.015	49.464	2.5	ug/L
	Se	82	9238.883	1.919	0.019	49.646	1.6	ug/L
	Y	89	685166.882	1.598	-44719.079			ug/L
	Cd	111	119985.248	1.347	0.155	47.664	0.9	ug/L
	Cd	114	272343.334	1.731	0.354	47.838	1.3	ug/L
>	In	115	769277.393	0.493	769277.393			ug/L
	Ba	137	154201.902	1.205	0.180	49.211	0.4	ug/L
>	Tb	159	858062.662	0.761	858062.662			ug/L
	Tl	205	753097.512	0.829	0.878	51.120	0.2	ug/L
	Tl	203	311321.091	1.587	0.363	51.544	0.9	ug/L
	Pb	208	1017525.416	0.902	1.185	51.221	0.2	ug/L

Method 200.8 - Summary Report

Sample ID: CCV-03
Sample Date/Time: Wednesday, September 07, 2011 11:07:56
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-03.036

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌜	Na	23	12597334.573	2.398	43.661	3620.817	2.6	ug/L
|	Mg	24	8542349.252	2.285	29.631	3690.125	2.3	ug/L
|	K	39	29350025.054	1.297	99.467	3734.900	1.3	ug/L
|	Ca	43	63662.231	2.614	0.219	3842.548	2.9	ug/L
|	Ca	44	1084350.401	1.941	3.627	4225.611	2.1	ug/L
⌞>	Sc-1	45	288263.647	0.336	288263.647			ug/L

Method 200.8 - Summary Report

Sample ID: CCV-04
Sample Date/Time: Wednesday, September 07, 2011 11:33:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-04.048

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	13181204.644	1.763	44.414	3683.273	1.3	ug/L
|	Mg	24	8713965.462	2.647	29.386	3659.660	2.4	ug/L
|	K	39	31176805.947	1.100	102.802	3860.127	0.8	ug/L
|	Ca	43	66577.634	2.009	0.223	3907.151	1.7	ug/L
|	Ca	44	1127148.184	2.090	3.667	4271.912	1.7	ug/L
⌊>	Sc-1	45	296490.011	0.488	296490.011			ug/L

Method 200.8 - Summary Report

Sample ID: CCV-05
Sample Date/Time: Wednesday, September 07, 2011 11:48:44
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-05.059

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	12704564.281	1.685	43.751	3628.245	1.5	ug/L
|	Mg	24	8539129.171	2.119	29.430	3665.096	1.7	ug/L
|	K	39	30192406.816	2.827	101.712	3819.199	2.1	ug/L
|	Ca	43	64650.532	2.927	0.221	3877.142	2.4	ug/L
|	Ca	44	1098751.332	2.792	3.652	4255.309	2.5	ug/L
⌊>	Sc-1	45	290115.507	1.105	290115.507			ug/L

Method 200.8 - Summary Report

Sample ID: CCV-07
Sample Date/Time: Wednesday, September 07, 2011 12:25:59
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-07.074

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	161190.224	2.135	0.562	45.547	2.3	ug/L
| >	Sc	45	284910.101	1.223	284910.101			ug/L
⌊	Mn	55	558369.253	2.360	1.958	49.258	2.0	ug/L
⌈	Fe	54	2140817.611	1.784	7.398	3719.115	1.6	ug/L
|	Fe	57	959221.041	1.976	3.339	4060.227	2.1	ug/L
⌊ >	Sc-1	45	284910.101	1.223	284910.101			ug/L

Method 200.8 - Summary Report

Sample ID: CCV-08
Sample Date/Time: Wednesday, September 07, 2011 12:48:45
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090711\CCV-08.085

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	159288.583	2.417	0.560	45.425	1.0	ug/L
| >	Sc	45	282253.913	1.376	282253.913			ug/L
⌊	Mn	55	535662.968	1.111	1.896	47.700	1.0	ug/L
⌈	Fe	54	2060942.678	0.883	7.187	3612.844	1.8	ug/L
|	Fe	57	923528.036	0.446	3.244	3945.037	0.9	ug/L
⌊ >	Sc-1	45	282253.913	1.376	282253.913			ug/L

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	0.00	0.0					
Aluminum	10.0	8.92	89.2					
Aluminum	10.0	9.50	95.0					
Antimony	0.5	0.00	0.0					
Arsenic	0.3	0.30	100.3					
Arsenic	0.3	0.24	80.0					
Barium	5.0	4.91	98.2					
Barium	5.0	5.16	103.1					
Beryllium	0.2	0.20	101.0					
Beryllium	0.2	0.23	115.0					
Cadmium	0.2	0.21	104.0					
Cadmium	0.2	0.19	94.0					
Calcium	200.0	190.82	95.4					
Calcium	200.0	207.14	103.6					
Calcium	200.0	0.00	0.0					
Chromium	2.0	2.02	100.9					
Chromium	2.0	2.22	111.1					
Cobalt	1.0	1.10	109.7					
Cobalt	1.0	0.96	96.5					
Copper	1.0	1.12	111.8					
Copper	1.0	0.98	98.3					
Iron	40.0	0.00	0.0					
Iron	40.0	46.45	116.1					
Iron	40.0	39.65	99.1					
Lead	0.2	0.19	96.0					
Lead	0.2	0.21	105.5					
Magnesium	100.0	102.08	102.1					
Magnesium	100.0	92.96	93.0					
Magnesium	100.0	0.00	0.0					
Manganese	1.0	0.98	97.9					
Manganese	1.0	1.03	102.5					
Manganese	1.0	0.00	0.0					
Nickel	2.0	1.95	97.4					
Nickel	2.0	2.24	111.8					
Potassium	100.0	0.00	0.0					
Potassium	100.0	107.21	107.2					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Potassium	100.0	108.95	109.0					
Selenium	1.0	1.00	99.9					
Selenium	1.0	0.86	85.8					
Silver	0.3	0.00	0.0					
Silver	0.3	0.00	0.0					
Sodium	100.0	0.00	0.0					
Sodium	100.0	92.08	92.1					
Sodium	100.0	100.54	100.5					
Thallium	0.4	0.40	99.5					
Thallium	0.4	0.42	103.8					
Vanadium	0.8	0.83	103.3					
Vanadium	0.8	0.88	109.4					
Zinc	10.0	9.64	96.4					
Zinc	10.0	10.40	104.0					

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

See Raw Data

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42658 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23326 Prepa-ration Blank	C	
Aluminum	0.00013	J	0.00013	J	0.00013	U	0.00013	U	0.50	U	
Antimony	0.000034	U	0.000034	U	0.000034	U	0.000034	U	0		
Arsenic	0.033	J	0.00012	J	0.00012	J	0.014	J	0.015	U	
Barium	0.011	J	0.0080	J	0.010	J	0.037	J	0.25	U	
Beryllium	0.044	J	0.013	J	0.026	J	0.057	J	0.020	U	
Cadmium	0.033	J	0.029	J	0.0070	J	0.024	J	0.010	U	
Calcium	0.0035	J	0.0035	J	0.0035	U	0.0035	U	10	U	
Chromium	0.049	J	0.017	J	0.018	J	0.044	J	0.10	U	
Cobalt	0.011	J	0.0050	J	0.011	J	0.048	J	0.050	U	
Copper	0.028	J	0.0050	J	0.0090	J	0.045	J	0.050	U	
Iron	0.0015	J	0.0015	J	0.0015	U	0.0015	U	2.0	U	
Lead	0.0090	J	0.0030	J	0.0090	J	0.031	J	0.010	U	
Magnesium	0.88	J	0.28	J	0.035	U	0.035	U	5.0	U	
Manganese	0.0070	J	0.000022	J	0.000022	U	0.000022	U	0.050	U	
Nickel	0.024	J	0.0040	J	0.015	J	0.039	J	0.10	U	
Potassium	0.78	J	0.0020	J	0.0020	U	0.0020	U	5.0	U	
Selenium	0.00029	J	0.00029	J	0.11	J	0.20	J	0.050	U	
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U	0		
Sodium	0.90	J	0.21	J	0.0029	U	0.0029	U	5.0	U	
Vanadium	0.11	J	0.057	J	0.10	J	0.088	J	0.040	U	
Zinc	0.00012	J	0.00012	J	0.00012	J	0.00012	J	0.50	U	

Method 200.8 - Summary Report

Sample ID: CCB
Sample Date/Time: Wednesday, September 07, 2011 09:15:35
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\epa200.8\no eq as,se\1epa200a no ag,sbnoeq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCB .009

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	28979.450	0.355	28979.450			ug/L
	Be	9	18.000	33.333	0.000	0.013	171.6	ug/L
	Al	27	1206.080	2.553	-0.000	-0.014	51.0	ug/L
>	Sc	45	329476.240	0.107	329476.240			ug/L
	V	51	1629.984	8.902	0.002	0.057	25.7	ug/L
	Cr	52	7743.297	1.430	0.000	0.017	79.4	ug/L
	Cr	53	4498.446	0.567	-0.002	-0.718	2.9	ug/L
	Mn	55	708.028	8.055	-0.000	-0.002	182.3	ug/L
	Co	59	128.668	24.098	0.000	0.005	50.0	ug/L
	Ni	60	138.668	15.150	0.000	0.004	205.9	ug/L
	Cu	63	515.348	15.985	0.000	0.005	286.4	ug/L
	Cu	65	278.671	26.481	0.000	0.001	3375.6	ug/L
	Zn	66	364.674	13.258	-0.000	-0.068	38.5	ug/L
	Zn	67	566.684	7.768	-0.000	-0.107	123.9	ug/L
	Zn	68	400.009	9.368	-0.000	-0.056	47.0	ug/L
>	Ge	72	514410.182	0.670	514410.182			ug/L
	As	75	378.675	10.880	-0.000	-0.004	513.4	ug/L
	Se	77	209.336	1.989	-0.000	-0.067	43.0	ug/L
	Se	82	-6.858	467.961	-0.000	-0.055	298.9	ug/L
	Y	89	719078.500	0.184	-10807.462			ug/L
	Mo	98	1804.801	9.191	0.001	0.213	12.3	ug/L
	Cd	111	471.353	6.854	0.000	0.029	43.8	ug/L
	Cd	114	81.103	29.704	0.000	0.003	157.7	ug/L
>	In	115	815785.241	0.943	815785.241			ug/L
	Ba	137	65.216	20.407	0.000	0.008	53.9	ug/L
>	Tb	159	873510.981	0.712	873510.981			ug/L
	Tl	203	192.669	4.195	0.000	0.021	7.4	ug/L
	Tl	205	460.679	14.827	0.000	0.022	21.8	ug/L
	Pb	208	510.006	30.258	0.000	0.003	231.0	ug/L
	Na	23	14526.278	4.320	0.002	0.206	74.7	ug/L
	Mg	24	1874.204	28.857	0.002	0.279	73.2	ug/L
	K	39	773528.471	1.253	-0.002	-0.067	1519.7	ug/L
	Ca	43	511.348	4.984	-0.000	-0.244	545.5	ug/L
	Ca	44	41165.661	0.416	-0.010	-11.484	6.3	ug/L
	Fe	54	39912.646	3.644	0.005	2.455	88.3	ug/L
	Fe	57	9107.908	6.959	-0.000	-0.200	1153.2	ug/L
>	Sc-1	45	329476.240	0.107	329476.240			ug/L

Sample ID: CCB
Report Date/Time: Wednesday, September 07, 2011 09:16:53
Page 1

Method 200.8 - Summary Report

Sample ID: CCB-01
Sample Date/Time: Wednesday, September 07, 2011 10:11:59
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-01.021

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	27809.805	0.213	27809.805			ug/L
	Be	9	20.667	68.657	0.000	0.026	210.5	ug/L
>	Sc	45	306888.349	1.109	306888.349			ug/L
	V	51	1948.613	8.753	0.003	0.103	19.9	ug/L
	Cr	52	7216.864	1.836	0.000	0.018	124.5	ug/L
	Cr	53	3105.197	2.229	-0.006	-1.884	4.9	ug/L
	Co	59	182.002	55.044	0.000	0.011	85.0	ug/L
	Ni	60	154.001	29.415	0.000	0.015	133.4	ug/L
	Cu	63	506.014	11.298	0.000	0.009	117.5	ug/L
	Cu	65	226.003	20.867	-0.000	-0.011	157.5	ug/L
	Zn	66	364.007	6.662	-0.000	-0.062	22.0	ug/L
	Zn	67	402.009	4.798	-0.000	-0.605	11.8	ug/L
	Zn	68	390.675	11.509	-0.000	-0.054	61.8	ug/L
>	Ge	72	499503.232	0.533	499503.232			ug/L
	As	75	334.673	12.626	-0.000	-0.020	101.5	ug/L
	Se	77	176.002	5.208	-0.000	-0.249	24.2	ug/L
	Se	82	24.711	103.482	0.000	0.110	121.7	ug/L
	Y	89	681650.708	0.608	-48235.253			ug/L
	Cd	111	398.329	4.252	0.000	0.007	92.7	ug/L
	Cd	114	102.325	42.735	0.000	0.007	112.3	ug/L
>	In	115	788126.504	0.378	788126.504			ug/L
	Ba	137	71.185	15.511	0.000	0.010	34.9	ug/L
>	Tb	159	859849.613	0.159	859849.613			ug/L
	Tl	205	615.355	21.138	0.001	0.033	27.0	ug/L
	Tl	203	246.003	26.433	0.000	0.030	36.1	ug/L
	Pb	208	605.342	26.999	0.000	0.009	96.7	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-02
Sample Date/Time: Wednesday, September 07, 2011 10:32:41
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-02.032

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	26510.604	1.535	26510.604			ug/L
	Be	9	27.333	53.935	0.001	0.057	102.4	ug/L
>	Sc	45	297632.958	1.355	297632.958			ug/L
	V	51	1759.287	40.145	0.003	0.088	85.4	ug/L
	Cr	52	7208.870	8.170	0.001	0.044	143.0	ug/L
	Cr	53	2969.152	3.927	-0.006	-1.931	7.1	ug/L
	Co	59	564.700	114.512	0.002	0.048	127.2	ug/L
	Ni	60	207.336	58.314	0.000	0.039	130.1	ug/L
	Cu	63	689.365	57.049	0.001	0.045	154.9	ug/L
	Cu	65	358.675	51.560	0.000	0.040	166.7	ug/L
	Zn	66	453.345	31.551	-0.000	-0.004	2197.1	ug/L
	Zn	67	358.674	11.701	-0.000	-0.722	19.5	ug/L
	Zn	68	413.343	16.764	-0.000	-0.029	186.6	ug/L
>	Ge	72	487936.588	0.282	487936.588			ug/L
	As	75	394.009	22.883	0.000	0.014	325.4	ug/L
	Se	77	178.668	1.710	-0.000	-0.203	11.4	ug/L
	Se	82	40.154	105.108	0.000	0.197	115.5	ug/L
	Y	89	678806.622	0.907	-51079.340			ug/L
	Cd	111	442.979	18.606	0.000	0.024	128.1	ug/L
	Cd	114	273.631	115.635	0.000	0.036	150.1	ug/L
>	In	115	790000.814	1.071	790000.814			ug/L
	Ba	137	155.794	93.800	0.000	0.037	125.9	ug/L
>	Tb	159	862759.602	0.778	862759.602			ug/L
	Tl	205	522.017	45.295	0.000	0.026	61.3	ug/L
	Tl	203	240.670	46.018	0.000	0.029	63.9	ug/L
	Pb	208	1047.367	81.981	0.001	0.031	141.2	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-03
Sample Date/Time: Wednesday, September 07, 2011 11:18:37
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-03.037

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	11375.112	0.352	-0.004	-0.348	6.6	ug/L
|	Mg	24	5968.028	23.035	0.016	2.048	29.2	ug/L
|	K	39	732329.719	0.383	0.058	2.187	29.9	ug/L
|	Ca	43	382.675	3.360	-0.000	-5.396	9.4	ug/L
|	Ca	44	35430.910	0.138	-0.018	-21.329	6.4	ug/L
⌊>	Sc-1	45	304167.806	1.073	304167.806			ug/L

OK

Method 200.8 - Summary Report

Sample ID: CCB-04
Sample Date/Time: Wednesday, September 07, 2011 11:37:07
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-04.049

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	17846.644	20.230	0.018	1.473	64.7	ug/L
|	Mg	24	12695.777	39.453	0.039	4.824	42.1	ug/L
|	K	39	736098.960	0.570	0.101	3.806	7.8	ug/L
|	Ca	43	445.345	19.588	-0.000	-1.482	328.4	ug/L
|	Ca	44	37555.418	1.064	-0.010	-11.372	5.8	ug/L
⌊>	Sc-1	45	300347.067	0.862	300347.067			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-05
Sample Date/Time: Wednesday, September 07, 2011 11:50:51
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-05.060

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	15973.439	9.514	0.015	1.268	36.5	ug/L
|	Mg	24	6848.637	18.437	0.021	2.609	22.1	ug/L
|	K	39	737735.935	0.535	0.277	10.419	12.0	ug/L
|	Ca	43	376.008	9.851	-0.000	-3.972	60.6	ug/L
|	Ca	44	34659.948	0.510	-0.011	-13.249	19.7	ug/L
⌊>	Sc-1	45	280861.172	1.483	280861.172			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-07
Sample Date/Time: Wednesday, September 07, 2011 12:31:46
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-07.075

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	819.370	4.798	-0.001	-0.074	15.4	ug/L
| >	Sc	45	279967.270	1.080	279967.270			ug/L
⌊	Mn	55	438.011	2.093	-0.001	-0.017	3.3	ug/L
⌈	Fe	54	31379.011	1.155	-0.004	-2.098	14.2	ug/L
|	Fe	57	8673.469	0.640	0.003	3.861	9.5	ug/L
⌊ >	Sc-1	45	279967.270	1.080	279967.270			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-08
Sample Date/Time: Wednesday, September 07, 2011 12:52:19
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090711\CCB-08.086

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	764.032	2.973	-0.001	-0.091	8.2	ug/L
|>	Sc	45	281628.486	0.448	281628.486			ug/L
⌊	Mn	55	463.345	7.018	-0.001	-0.015	18.2	ug/L
⌈	Fe	54	30662.126	1.411	-0.007	-3.712	14.5	ug/L
|	Fe	57	8626.092	1.979	0.003	3.434	25.8	ug/L
⌊>	Sc-1	45	281628.486	0.448	281628.486			ug/L

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	9832	9470.0	94.7			
Antimony	0	0	0	0.0	0.0			
Arsenic	0	20	0	19.1	95.3			
Barium	0	0	0	0.1	0.0			
Beryllium	0	0	0	0.0	0.0			
Cadmium	0	20	0	18.6	93.0			
Calcium	10000	10000	9515	9226.4	92.3			
Chromium	0	20	0	20.0	100.0			
Cobalt	0	20	0	19.7	98.7			
Copper	0	20	1	19.5	97.6			
Iron	10000	10000	10335	10117.5	101.2			
Lead	0	0	0	0.1	0.0			
Magnesium	10000	10000	9390	9020.8	90.2			
Manganese	0	20	0	19.9	99.7			
Nickel	0	20	1	20.1	100.5			
Potassium	10000	10000	9581	9204.2	92.0			
Selenium	0	0	0	0.0	0.0			
Silver	0	20	0	0.0	0.0			
Sodium	10000	10000	9507	8940.7	89.4			
Thallium	0	0	0	0.0	0.0			
Vanadium	0	0	0	-0.3	0.0			
Zinc	0	20	1	20.7	103.5			

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108447

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

Test Code: SW 6020S-SA

Start Date: 09/08/2011

End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
ZZZZZZ	1.00	0818		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0822		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0825		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
ZZZZZZ	1.00	0828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0845		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0854		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0857		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1738			X																	X	
ZZZZZZ	1.00	1743			X																	X	
ZZZZZZ	1.00	1745			X																	X	
ZZZZZZ	1.00	1746			X																	X	
ZZZZZZ	1.00	1747			X																	X	
ZZZZZZ	1.00	1748			X																	X	
ZZZZZZ	1.00	1751			X																	X	
PBS	1.00	1752			X																	X	
LCSS	20.00	1753			X																	X	
EU35-0002S	20.00	1755			X																	X	
U35-0002SD	20.00	1756			X																	X	
-EU35-0002	10.00	1800			X																	X	
-EU47-0002	10.00	1800			X																	X	
-EU46-0002	10.00	1801			X																	X	
-EU36-0002	10.00	1802			X																	X	
P03-081011	10.00	1803			X																	X	
-EU23-0002	10.00	1803			X																	X	
ZZZZZZ	1.00	1804			X																	X	
ZZZZZZ	1.00	1808			X																	X	
-EU45-0002	10.00	1809			X																	X	
-EU49-0002	10.00	1810			X																	X	
-EU48-0002	10.00	1811			X																	X	
-EU44-0002	10.00	1811			X																	X	
-EU43-0002	10.00	1812			X																	X	
-EU42-0002	10.00	1813			X																	X	
-EU34-0002	10.00	1814			X																	X	
-EU33-0002	10.00	1814			X																	X	
ZZZZZZ	1.00	1815			X																	X	

FORM XIV - IN

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108447

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

Test Code: SW 6020S-SA

Start Date: 09/08/2011

End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
ZZZZZZ	1.00	1818			X																	X	
ZZZZZZ	1.00	1819			X																	X	
PBS	1.00	1822			X																	X	
LCSS	20.00	1823			X																	X	
ZZZZZZ	20.00	1826			X																	X	
ZZZZZZ	20.00	1828			X																	X	
ZZZZZZ	10.00	1830			X																	X	
ZZZZZZ	10.00	1831			X																	X	
ZZZZZZ	10.00	1832			X																	X	
ZZZZZZ	10.00	1833			X																	X	
ZZZZZZ	10.00	1833			X																	X	
ZZZZZZ	10.00	1834			X																	X	
ZZZZZZ	1.00	1835			X																	X	
ZZZZZZ	1.00	1839			X																	X	
ZZZZZZ	10.00	1840			X																	X	
ZZZZZZ	10.00	1840			X																	X	
ZZZZZZ	10.00	1841			X																	X	
ZZZZZZ	10.00	1842			X																	X	
ZZZZZZ	10.00	1843			X																	X	
ZZZZZZ	10.00	1844			X																	X	
ZZZZZZ	10.00	1844			X																	X	
ZZZZZZ	10.00	1845			X																	X	
ZZZZZZ	1.00	1846			X																	X	
ZZZZZZ	1.00	1849			X																	X	
ZZZZZZ	1.00	1850			X																	X	

FORM XIV - IN

Instrument Tuning Report

File Name: Default.tun
File Path: C:\Elandata\Tuning\Default.tun

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	9.025	2039	2077	0.769	
Mg	23.985	24.025	5646	2113	0.753	
Co	58.933	58.925	14098	2186	0.756	
In	114.904	114.875	27636	2318	0.744	
Ba	137.905	137.875	33220	2378	0.777	
Ce	139.905	139.925	33692	2375	0.764	
Pb	207.977	207.975	50185	2538	0.761	

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\090811\
Report Date/Time: Thursday, September 08, 2011 19:20:49

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	Blank	08:15:03 Thu 08-Sep-11	Blank	C:\Elandata\DataSet\090811\Blank.001	
	Standard 1	08:17:00 Thu 08-Sep-11	Standard #1	C:\Elandata\DataSet\090811\Standard 1.002	
SW_6020S,ICV	ICV-01	08:18:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICV-01.003	
SW_6020S,ICB	ICB-01	08:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICB-01.004	
SW_6020S,CRQL	CRQL-6A	08:25:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-6A.005	
SW_6020S,ICSA	ICSA	08:28:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSA.006	
SW_6020S,ICSAB	ICSAB	08:45:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSAB.007	
SW_6020S,CCV	CCV	08:54:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV .008	
SW_6020S,CCB	CCB	08:57:28 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB .009	
SW_6020S,MB	MB-23520	09:11:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.010	
SW_6020S,LCS	LCS-23520	09:12:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,MS	1108630-004AM	09:16:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,MS	1108630-004AM	09:19:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108630-004A	09:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SD	1108630-004AS	09:25:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,CCCV	CCV-01	09:30:55 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-01.016	
SW_6020S,CCCB	CCB-01	09:34:39 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-01.017	
SW_6020S,CRQL	CRQL-01	09:57:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01.018	
SW_6020S,CRQL	CRQL-01-1	10:02:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01-1.019	
SW_6020S,MB	MB-23333	10:10:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.020	
SW_6020S,LCS	LCS-23333	10:13:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,MS	1108481-016BM	10:17:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,MS	1108481-016BM	10:20:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-016B	10:23:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-003C	10:25:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-004C	10:26:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-005C	10:28:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-007C	10:30:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,CCCV	CCV-02	10:31:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-02.029	
SW_6020S,CCCB	CCB-02	10:34:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-02.030	
SW_6020S,SA	1108481-008B	10:38:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-009B	10:40:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-010B	10:41:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-011B	10:43:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-013B	10:44:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-014B	10:46:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-015B	10:48:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-017B	10:49:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,SA	1108481-018B	10:53:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811	
SW_6020S,CCCV	-03	10:58:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-03.040	
SW_6020S,CCCB	-03	11:01:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-03.041	
SW_6020S,CRQL	-03	11:03:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03.042	
SW_6020S,CRQL	-03-3	11:08:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03-3.043	
SW_6020S,SA	CHK.STD	11:10:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.044	

SW_6020S,CCCCV-04	11:21:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-04.045
SW_6020S,CCCCB-04	11:22:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-04.046
SW_6020S,MBMB-23520	11:23:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.047
SW_6020S,LCLCS-23520	11:24:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108630-004AM	11:26:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108630-004AM	11:28:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108630-004A	11:29:59 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SD1108630-004AS	11:35:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX100
SW_6020S,CCCCV-05	11:40:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-05.053
SW_6020S,CCCCB-05	11:44:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-05.054
SW_6020S,CFCRQL-05	11:45:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-05.055
SW_6020S,MBMB-23333	11:50:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.056
SW_6020S,LCLCS-23333	11:54:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108481-016BM	11:55:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108481-016BM	11:57:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-016B	11:59:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-003C	12:01:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-004C	12:01:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-005C	12:02:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-007C	12:03:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SD1108481-016BS	12:09:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX50
SW_6020S,CCCCV-06	12:16:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-06.066
SW_6020S,CCCCB-06	12:22:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-06.067
SW_6020S,SA1108481-008B	12:22:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-009B	12:23:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-010B	12:24:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-011B	12:25:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-012B	12:26:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-014B	12:27:08 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-015B	12:27:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-017B	12:28:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,SA1108481-018B	12:29:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,CCCCV-07	12:31:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-03.077
SW_6020S,CCCCB-07	12:33:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-03.078
SW_6020S,CFCRQL-07	12:34:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03.079
SW_6020S,SACHK.STD	12:45:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.080
SW_6020S,CCCCV-08	12:55:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-08.081
SW_6020S,CCCCB-08	13:00:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-08.082
SW_6020S,MBMB-23520	13:01:04 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.083
SW_6020S,LCLCS-23520	13:11:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108630-004AM	13:12:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,MS1108630-004AM	13:13:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108630-004A	13:15:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SD1108630-004AS	13:18:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX2000
SW_6020S,CCCCV-09	13:19:38 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-09.089
SW_6020S,CFCRQL-09	13:23:56 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-09.090
SW_6020S,CCCCB-09	13:25:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-09.091
SW_6020S,MBMB-23333	13:28:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.092
SW_6020S,LCLCS-23333	13:29:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
SW_6020S,MS1108481-016BM	13:31:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,MS1108481-016BM	13:34:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-016B	13:40:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SD1108481-016BS	13:47:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX2000
SW_6020S,SA1108481-003C	13:53:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-004C	13:54:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-005C	13:55:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400

SW_6020S,SA1108481-007C	13:56:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,CCCCV-10	13:59:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-10.102
SW_6020S,CCCCB-10	14:00:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-10.103
SW_6020S,SA1108481-008B	14:02:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-009B	14:02:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-010B	14:03:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-011B	14:04:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-013B	14:05:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-014B	14:06:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-015B	14:07:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-017B	14:07:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,SA1108481-018B	14:08:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400
SW_6020S,CCCCV-11	14:10:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-11.113
SW_6020S,CCCCB-11	14:15:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-11.114
SW_6020S,CFCRQL-11	14:18:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-11.115
SW_6020S,SACHK.STD	14:25:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.116
EPA_200.8,CCCCV-12	14:40:44 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-12.117
EPA_200.8,CCCCB-12	14:43:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-12.118
EPA_200.8-HAMB-23395	14:44:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23395.119
EPA_200.8-HALCS-23395	14:45:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8-HA1108966-002AM	14:46:25 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8-HA1108966-002AM	14:48:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8-HA1108966-002A	14:49:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8-HA1108A09-001C	14:50:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,CCCCV-13	14:59:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-13.125
EPA_200.8,CCCCB-13	15:03:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-13.126
EPA_200.8,CFCRQL-13	15:04:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-13.127
EPA_200.8,MBMB-23408	15:10:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23408.128
EPA_200.8,SA1108A61-004C	15:11:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SD1108A61-004CS	15:12:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX100
EPA_200.8,SA1108A61-001C	15:14:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-002C	15:14:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-003C	15:15:39 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-005C	15:16:24 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-006C	15:17:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-007C	15:17:55 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1108A61-008C	15:18:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,CCCCV-14	15:19:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-14.138
EPA_200.8,CCCCB-14	15:21:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-14.139
EPA_200.8,CFCRQL-14	15:22:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-14.140
EPA_200.8,CCCCV-15	15:30:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-15.141
EPA_200.8,CCCCB-15	15:32:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-15.142
EPA_200.8,MBMB-23526	15:33:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23526.143
EPA_200.8,LCLCS-23526	15:42:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,MS1109149-001BM	15:45:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,MS1109149-001BM	15:47:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,MS1109039-003CM	15:48:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20
EPA_200.8,SA1109149-001B	15:52:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5
EPA_200.8,SA1109039-003C	15:53:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5
EPA_200.8,SA1109033-002A	15:55:38 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5
EPA_200.8,SA1109033-004A	15:57:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5
EPA_200.8,SA1109039-001D	15:58:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5
EPA_200.8,CCCCV-16	16:00:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-16.153
EPA_200.8,CCCCB-16	16:03:08 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-16.154
EPA_200.8,CFCRQL-16	16:04:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-16.155
EPA_200.8,SA1109149-002C	16:08:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5

EPA_200.8,SA1109149-004C	16:09:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX5
EPA_200.8,SA1109149-005B	16:10:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109149-007B	16:11:25 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109148-001B	16:14:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX5
EPA_200.8,SA1109039-002C	16:15:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX5
EPA_200.8,CCCCV-17	16:16:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-17.162
EPA_200.8,CCCCB-17	16:20:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-17.163
EPA_200.8,CFCRQL-17	16:21:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-17.164
EPA_200.8,CCCCV-18	16:25:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-18.165
EPA_200.8,CCCCB-18	16:32:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-18.166
EPA_200.8,MBMB-23495	16:32:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23495.167
EPA_200.8,LCLCS-23495	16:33:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
EPA_200.8,MS1109067-001AM	16:34:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
EPA_200.8,MS1109067-001AM	16:35:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
EPA_200.8,SA1109067-001A	16:37:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-002A	16:38:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-003A	16:39:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,CCCCV-19	16:42:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-19.174
EPA_200.8,CCCCB-19	16:45:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-19.175
EPA_200.8,SD1109067-001AS	16:46:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
EPA_200.8,SA1109067-004A	16:47:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-005A	16:48:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-006A	16:49:06 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-007A	16:49:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,SA1109067-008A	16:50:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX10
EPA_200.8,CCCCV-20	16:52:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-20.182
EPA_200.8,CCCCB-20	16:55:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-20.183
EPA_200.8,CFCRQL-20	16:56:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-20.184
Blank	17:04:26 Thu 08-Sep-11	Blank	C:\Elandata\DataSet\090811\Blank.185
Standard 1	17:05:13 Thu 08-Sep-11	Standard #1	C:\Elandata\DataSet\090811\Standard 1.186
SW_6020S,ICVCV-02	17:06:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICV-02.187
SW_6020S,ICICB-02	17:08:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICB-02.188
SW_6020S,CFCRQL	17:09:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL.189
SW_6020S,ICICSA	17:10:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSA.190
SW_6020S,ICICSAB	17:11:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSAB.191
SW_6020S,CCCCV	17:11:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV .192
SW_6020S,CCCCB	17:13:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB .193
SW_6020S,MBMB-23520	17:16:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.194
SW_6020S,LCLCS-23520	17:17:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
SW_6020S,MS1108630-004AM	17:17:59 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
SW_6020S,MS1108630-004AM	17:18:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
SW_6020S,SA1108630-004A	17:23:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20
SW_6020S,CCCCV-21	17:25:59 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-21.199
SW_6020S,CCCCB-21	17:28:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-21.200
SW_6020S,CFCRQL-21	17:29:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-21.201
Blank	17:34:37 Thu 08-Sep-11	Blank	C:\Elandata\DataSet\090811\Blank.202
Standard 1	17:35:24 Thu 08-Sep-11	Standard #1	C:\Elandata\DataSet\090811\Standard 1.203
SW_6020S-SAICV-03	17:38:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICV-03.204
SW_6020S-SAICB-03	17:43:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICB-03.205
SW_6020S-SACRQL	17:45:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL.206
SW_6020S-SAICSA	17:46:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSA.207
SW_6020S-SAICSAB	17:47:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSAB.208
SW_6020S-SACCV	17:48:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV.209
SW_6020S-SACCB	17:51:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB.210
SW_6020S-SAMB-23327	17:52:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23327.211
SW_6020S-SALCS-23327	17:53:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ĐX20

SW_6020S-SA1108447-005CM	17:55:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
SW_6020S-SA1108447-005CM	17:56:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	14
SW_6020S-SA1108447-005C	18:00:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-001C	18:00:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-002C	18:01:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-003C	18:02:24 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-004C	18:03:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-006C	18:03:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-22	18:04:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-22.221	
SW_6020S-SACCB-22	18:08:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-22.222	
SW_6020S-SA1108447-007C	18:09:28 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-008C	18:10:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-009C	18:11:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-010C	18:11:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-011C	18:12:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-012C	18:13:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-013C	18:14:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-014C	18:14:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-23	18:15:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-23.231	
SW_6020S-SACCB-23	18:18:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-23.232	
SW_6020S-SACRQL-23	18:19:36 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-23.233	
SW_6020S-SAMB-23334	18:22:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23334.234	
SW_6020S-SALCS-23334	18:23:25 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S-SA1108481-016BM	18:26:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
SW_6020S-SA1108481-016BM	18:28:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	37
SW_6020S-SA1108481-016B	18:30:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-003C	18:31:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-004C	18:32:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-005C	18:33:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-007C	18:33:56 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-008B	18:34:44 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-24	18:35:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-24.244	
SW_6020S-SACCB-24	18:39:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-24.245	
SW_6020S-SA1108481-009B	18:40:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-010B	18:40:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-011B	18:41:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-013B	18:42:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-014B	18:43:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-015B	18:44:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-017B	18:44:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-018B	18:45:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-25	18:46:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-25.254	
SW_6020S-SACCB-25	18:49:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-25.255	
SW_6020S-SACRQL-25	18:50:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-25.256	
EPA_200.8-SAMB-23496	18:53:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23496.257	
EPA_200.8-SALCS-23496	18:54:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
EPA_200.8-SA1108B67-002AM	18:56:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
EPA_200.8-SA1108B67-002AM	18:57:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	30
EPA_200.8-SA1108B67-002A	18:59:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B67-004A	19:00:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B68-002A	19:01:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B68-004A	19:02:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B86-002A	19:02:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1109039-001D	19:03:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SACCV-26	19:04:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-26.267	
EPA_200.8-SACCB-26	19:06:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-26.268	

EPA_200.8-SA1109065-002A	19:07:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX5	
EPA_200.8-SAMB-23527	19:10:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23527.270	
EPA_200.8-SALCS-23527	19:10:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX20	
EPA_200.8-SA1109149-011AM	19:11:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX20	!
EPA_200.8-SA1109149-011AM	19:12:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX20	73
EPA_200.8-SA1109149-011A	19:14:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX5	
EPA_200.8-SA1109149-001B	19:15:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX5	
EPA_200.8-SA1109149-002C	19:16:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX5	
EPA_200.8-SA1109149-003B	19:16:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090ŒX5	
EPA_200.8-SACCV-27	19:17:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-27.278	
EPA_200.8-SACCB-27	19:19:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-27.279	
EPA_200.8-SACRQL-27	19:20:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-27.280	

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

See Raw Data

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Aluminum	50	51	101	50	47	95			MS
Antimony	0.050	0.055	110	50	0	0	0	0	MS
Arsenic	50	49	99	50	48	95			MS
Barium	50	50	100	50	48	96			MS
Beryllium	50	49	99	50	47	94			MS
Cadmium	50	50	100	50	46	92			MS
Calcium	5000	5100	101	4000	4000	99			MS
Chromium	50	51	101	50	50	101			MS
Cobalt	50	50	100	50	50	100			MS
Copper	50	50	100	50	51	102			MS
Iron	5000	5100	101	4000	4100	102			MS
Lead	50	50	99	50	50	100			MS
Magnesium	5000	5200	103	4000	3800	96			MS
Manganese	50	49	99	50	50	100			MS
Nickel	50	50	100	50	50	101			MS
Potassium	5000	5100	101	4000	3900	98			MS
Selenium	50	52	103	50	49	97			MS
Silver	0.050	0.053	107	50	0	0	0	0	MS
Sodium	5000	5200	103	4000	3800	94			MS
Thallium	50	49	99	50	50	99			MS
Vanadium	50	50	100	50	49	98			MS
Zinc	50	51	101	50	49	98			MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

Method 200.8 - Summary Report

Sample ID: CCV
Sample Date/Time: Thursday, September 08, 2011 17:48:07
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV.209

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	365008.514	1.908	0.668	50.686	2.5	ug/L
| >	In	115	546388.645	0.737	546388.645			ug/L
⌊	Sb	121	288172.084	2.119	0.527	51.070	2.7	ug/L

Method 200.8 - Summary Report

Sample ID: CCV-22
Sample Date/Time: Thursday, September 08, 2011 18:04:46
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-22.221

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	352928.464	1.413	0.632	47.983	2.2	ug/L
| >	In	115	558083.674	1.187	558083.674			ug/L
⌊	Sb	121	284754.867	1.465	0.510	49.409	2.5	ug/L

Method 200.8 - Summary Report

Sample ID: CCV-23
Sample Date/Time: Thursday, September 08, 2011 18:15:41
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-23.231

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	342724.788	1.806	0.609	46.220	2.1	ug/L
| >	In	115	562574.494	1.114	562574.494			ug/L
⌊	Sb	121	280476.270	1.538	0.498	48.272	1.8	ug/L

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.94	99.5					
Antimony	0.0	0.00	106.2					
Antimony	0.0	0.00	104.8					
Antimony	0.0	0.00	104.0					
Arsenic	0.3	0.26	87.3					
Barium	5.0	5.00	100.0					
Beryllium	0.2	0.22	112.0					
Cadmium	0.2	0.22	110.0					
Calcium	200.0	213.95	107.0					
Chromium	2.0	2.10	104.9					
Cobalt	1.0	1.03	102.7					
Copper	1.0	1.07	107.3					
Iron	40.0	42.44	106.1					
Lead	0.2	0.22	108.0					
Magnesium	100.0	106.24	106.2					
Manganese	1.0	0.97	97.0					
Nickel	2.0	2.06	103.0					
Potassium	100.0	113.26	113.3					
Selenium	1.0	1.08	107.9					
Silver	0.0	0.00	90.3					
Silver	0.0	0.00	89.3					
Silver	0.0	0.00	85.7					
Sodium	100.0	104.18	104.2					
Thallium	0.4	0.42	105.3					
Vanadium	0.8	0.92	114.4					
Zinc	10.0	10.07	100.7					

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108447

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

See Raw Data

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42726 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23327 Prepa-ration Blank	C	
Aluminum	0.00013	J	0.00013	J							A
Antimony	0.00013	J	0.000034	U	0.000034	U	0.00012	J	0.025	U	A
Arsenic	0.018	J	0.00012	J							A
Barium	0.0060	J	0.0040	J							A
Beryllium	0.030	J	0.044	J							A
Cadmium	0.0050	J	0.017	J							A
Calcium	0.0035	J	0.0035	J							A
Chromium	0.010	J	0.022	J							A
Cobalt	0.0070	J	0.0060	J							A
Copper	0.022	J	0.000041	J							A
Iron	4.5	J	3.9	J							A
Lead	0.0090	J	0.0070	J							A
Magnesium	0.52	J	0.33	J							A
Manganese	0.0090	J	0.000022	J							A
Nickel	0.024	J	0.000025	J							A
Potassium	4.6	J	4.4	J							A
Selenium	0.00029	J	0.20	J							A
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U	0.015	U	A
Sodium	0.59	J	0.0029	J							A
Thallium	0.012	J	0.012	J							A
Vanadium	0.049	J	0.20	J							A
Zinc	0.016	J	0.00012	J							A

Method 200.8 - Summary Report

Sample ID: CCB
Sample Date/Time: Thursday, September 08, 2011 17:51:17
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB.210

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[	Ag	107	128.001	8.700	-0.000	-0.001	106.4	ug/L
| >	In	115	558096.555	0.245	558096.555			ug/L
[	Sb	121	934.048	6.309	0.001	0.122	8.6	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-22
Sample Date/Time: Thursday, September 08, 2011 18:08:33
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-22.222

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	110.001	10.123	-0.000	-0.004	34.6	ug/L
| >	In	115	561861.614	0.823	561861.614			ug/L
⌊	Sb	121	834.705	4.041	0.001	0.103	5.2	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-23
Sample Date/Time: Thursday, September 08, 2011 18:18:48
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-23.232

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	100.667	2.294	-0.000	-0.005	7.3	ug/L
| >	In	115	564497.216	1.030	564497.216			ug/L
⌊	Sb	121	796.702	5.616	0.001	0.096	7.0	ug/L

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108447

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	9196	9122.0	91.2			
Antimony	0	0	0	0.0	0.0	0	0.0	
Arsenic	0	20	0	19.5	97.6			
Barium	0	0	0	0.1	0.0			
Beryllium	0	0	0	0.1	0.0			
Cadmium	0	20	0	18.8	93.9			
Calcium	10000	10000	9337	9601.1	96.0			
Chromium	0	20	0	20.6	103.0			
Cobalt	0	20	0	20.4	102.2			
Copper	0	20	0	20.8	103.8			
Iron	10000	10000	9266	9565.2	95.7			
Lead	0	0	0	0.1	0.0			
Magnesium	10000	10000	9215	9054.8	90.5			
Manganese	0	20	0	20.7	103.4			
Nickel	0	20	0	20.7	103.4			
Potassium	10000	10000	9354	9554.8	95.5			
Selenium	0	0	0	0.1	0.0			
Silver	0	20	0	0.0	89.9	0	0.0	0.0
Sodium	10000	10000	9200	9212.9	92.1			
Thallium	0	0	0	0.0	0.0			
Vanadium	0	0	0	-0.3	0.0			
Zinc	0	20	1	20.7	103.6			

TETRA TECH, INC **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4973W

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108447
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 14/ Soil: Metals

IOA-SS-DUP03-081011[1]	IOA-SS-EU23-0002	IOA-SS-EU33-0002
IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002
IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002
IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU47-0002
IOA-SS-EU48-0002	IOA-SS-EU49-0002	

[1]Field duplicate of IOA-SS-EU43-0002

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

Metals

The project goals with respect to precision were met for the metals data set with the following exceptions. Manganese was qualified as estimated in all samples due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

Potassium and copper were qualified as estimated in all samples due to field duplicate imprecision. The data usability is not impacted for potassium since there is no project screening limit established for this analyte. Also, the data usability is not impacted for copper since the sample results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project screening limits were evaluated for non-detected results only [reported at the limit of detection (LOD)] with respect to the project sensitivity goals. The LODs for antimony and thallium in select samples

were elevated as a result of the presence of laboratory blank contamination. Although elevated, the LODs for antimony still met the project screening limits; thus, the data usability is not impacted for antimony. The elevated LODs for thallium in select samples did not meet the project screening limit. Consequently, the data usability may be impacted for thallium with regards to sensitivity.

The project goals with respect to accuracy and laboratory data completeness were met for the metals data set. Data usability was not impacted with regards to accuracy and laboratory data completeness.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**P. CALL**	**DATE:**	**DECEMBER 14, 2011**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC / PAH / PCB** **NAS SOUTH WEYMOUTH, CTO WE11** **SDG 1108481**		

SAMPLES: 1 / Aqueous / VOC

IOA-SO-TB01-081511

6 / Soil / VOC

IOA-SO-DUP05-081511	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507

14 / Soil / PAH

IOA-SO-DUP05-081511	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507
IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608
IOA-SO-RIA82-04A-0608	IOA-SS-DUP04-081111	IOA-SS-EU12-0002
IOA-SS-EU19-0002	IOA-SS-EU32-0002	

6 / Soil / PCB

IOA-SS-DUP04-081111	IOA-SS-EU12-0002	IOA-SS-EU19-0002
IOA-SS-EU21-0002	IOA-SS-EU22-0002	IOA-SS-EU32-0002

OVERVIEW

The sample set for NAS South Weymouth, CTO WE11, SDG 1108481 consisted of fourteen (14) soil environmental samples and one (1) aqueous trip blank sample. The samples were analyzed as listed above for volatile organic compounds (VOC), polynuclear aromatic hydrocarbons (PAH), and polychlorinated biphenyls (PCB). Two field duplicate sample pairs were included in this sample delivery group (SDG): IOA-SS-DUP04-081111 / IOA-SS-EU32-0002 and IOA-SO-DUP05-081511 / IOA-SO-RIA33-SB14-0507.

The samples were collected by Tetra Tech on August 11 and 15, 2011 and analyzed by RTI Laboratories, Inc. All analyses were conducted in accordance with EPA SW-846 Methods 8260B Full Scan for VOCs, 8270D for PAHs, and 8082 for PCBs, analytical and reporting protocols. A Tier II validation was conducted on the referenced samples. The data was evaluated based on the following parameters:

- Data Completeness
- Holding Times
- GC/MS Instrument Tuning and System Performance
- Initial and Continuing Calibration
- Blank Results
- Blank Spike/Blank Spike Duplicate Results

- Surrogate Spike Recoveries
- Internal Standard Recoveries
- Matrix Spike/Matrix Spike Duplicate Recoveries
- * Field Duplicate Precision
- * Detection Limits

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report.

HOLD TIME

The holding time from collection to analysis of 14 days for the analysis of VOCs was slightly exceeded (14 days 6 hours and 44 minutes) for soil sample IOA-SO-RIA33-SB02-0507. As the sample to analysis hold time rounded to 14 days, no sample IOA-SO-RIA33-SB02-0507 VOC analytes were qualified for this issue.

The holding time from extraction to analysis to analysis hold time of 40 days was exceeded by <2X for all soil samples analyzed for PAHs. All positive and non-detected PAH analyte results for the soil samples were qualified estimated, (J) and (UJ), respectively.

BLANKS

The following VOC analytes were detected in the method blanks at the maximum concentration as indicated below.

Compound	Maximum Conc. (µg/kg)	Action Level (µg/kg)
Acetone [1]	5.8	58.0
Toluene [1]	0.79	3.95
2-Butanone [2]	2.1	21.0

[1] Method blank VOA BLK 081911A affecting samples IOA-SO-DUP05-081511, IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB08-0305, IOA-SO-RIA33-SB10-0305, and IOA-SO-RIA33-SB14-0507.

[2] Method blank VOA BLK 082911 affecting sample IOA-SO-RIA33-SB02-0507.

An action level of 10X for the common laboratory contaminants acetone and 2-butanone, and 5X for the laboratory contaminant toluene was established to evaluate laboratory contamination for the aforementioned compounds. Dilution factors, sample aliquots, and percent solids were taken into consideration during the application of all action levels. Positive acetone and 2-butaone results less than the action level were qualified as non-detected, (U), and raised to the LOD (if less than), as a result of blank contamination. All samples had non-detected toluene results. The trip blank sample IOA-SO-TB01-081511 was not qualified for method blank contamination.

CALIBRATIONS

The VOC initial calibration data for instrument VOA8 for both 08/19/11 and 08/29/11 was missing the correlation coefficient "r" and/or the coefficient of determination "r^2" values for the linear and quadratic curves for the analytes as listed below. Additionally, all continuing calibration verifications (CCV) were missing the CCV percent drift determination data for the same analytes as the laboratory only reported relative response

factor (RRF) percent differences (%Ds) for those analytes calibrated using linear or quadratic curves. All associated sample positive and non-detected analyte (from analytes listed below) results were qualified estimated, (J) and (UJ), respectively, except for a methylene chloride result rejected for MS/MSD non-compliances and acetone results qualified for method or trip blank contamination.

VOC Analytes with linear or quadratic calibration curves
Bromomethane and Methylene chloride [1]
Bromomethane, Acetone, Methylene chloride, and 2-Hexanone [2]

[1] Affecting samples IOA-SO-DUP05-081511, IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB08-0305, IOA-SO-RIA33-SB10-0305, and IOA-SO-RIA33-SB14-0507.
[2] Affecting sample IOA-SO-RIA33-SB02-0507.

The VOC CCV %D was greater than the 20% quality control limit for 4-methyl-2-pentanone on 08/29/11 @ 08:48 on instrument VOA8 affecting sample IOA-SO-RIA33-SB02-0507. The non-detected 4-methyl-2-pentanone result for sample IOA-SO-RIA33-SB02-0507 was qualified estimated, (UJ).

LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE

The VOC laboratory control sample (LCS) percent recovery (%R) was less than 10% (actual recovery 0%) for methyl acetate for LCS VOA LCS 081911A affecting samples IOA-SO-DUP05-081511, IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB08-0305, IOA-SO-RIA33-SB10-0305, and IOA-SO-RIA33-SB14-0507. The non-detected methyl acetate results for the aforementioned samples were qualified rejected, (UR).

The VOC LCS %R was less than the quality control limit and the relative percent difference (RPD) for the LCS/LCS duplicate (LCSD) was greater than the quality control limit for methylene chloride for LCS VOA LCS/LCSD 082911A affecting sample IOA-SO-RIA33-SB02-0507. The non-detected result for methylene chloride for sample IOA-SO-RIA33-SB02-0507 was qualified estimated, (UJ).

MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

The VOC MS and MSD %Rs were less than the quality control limit and the MS/MSD RPDs were greater than the quality control limit for the VOCs analytes for sample IOA-SO-RIA33-SB10-0305 as listed below. The sample analyte results were qualified as listed below.

Analyte	%MS	%MSD	RPD	Qualifier for sample result
1,2,4-Trichlorobenzene	11	6	52	UJ
1,2-Dibromoethane	48	35	33	UJ
1,2-Dichlorobenzene	29	18	50	UJ
1,2-Dichloroethane	---	59	---	UJ
1,3-Dichlorobenzene	26	15	52	UJ
1,4-Dichlorobenzene	23	14	54	UJ
2-Hexanone	---	---	26	---
Benzene	---	74	---	UJ
Bromodichloromethane	67	---	---	UJ
Bromoform	---	44	33	UJ
Chlorobenzene	51	35	40	UJ
Chlorodibromomethane	---	54	---	UJ
Cis-1,2-Dichloroethene	---	62	---	UJ
Cis-1,3-Dichloropropene	51	35	40	UJ
Ethyl benzene	63	47	30	UJ
m,p-Xylene	60	44	33	UJ

Methyl acetate	0	0	0	UR
Methylene Chloride	0	0	0	UR
o-Xylene	67	54	---	UJ
Styrene	43	25	53	UJ
Toluene	---	61	---	UJ
Trans-1,2-dichloroethene	---	64	---	UJ
Trans-1,3-dichloropropene	34	24	37	UJ
Xylenes, total	62	47	30	UJ

INTERNAL STANDARDS

All of the VOC internal standard recoveries were less than the quality control limit for sample IOA-SO-RIA33-SB10-0305. All sample IOA-SO-RIA33-SB10-0305 VOC analyte positive and non-detected VOC results were qualified estimated, (J) and (UJ), respectively, except for the acetone result which was qualified non-detected for method blank contamination, and methyl acetate and methylene chloride non-detected results which were rejected for more severe quality control limit non-compliances.

SURROGATE SPIKE RECOVERIES

The VOC surrogate spike %Rs were less than the quality control limit for dibromofluoromethane and toluene-d8 for sample IOA-SO-RIA33-SB10-0305. The positive and non-detected VOC analyte results for the sample were qualified estimated, (J) and (UJ), respectively, except for the acetone result which was qualified non-detected for method blank contamination, and methyl acetate and methylene chloride non-detected results which were rejected for more severe quality control limit non-compliances.

It was noted in the laboratory narrative that a cracked cap was found after the VOC analysis of sample IOA-SO-RIA33-SB10-0305 possibly resulting in the loss of internal standards and surrogates. Insufficient sample remained for the re-analysis of the sample. Results may be biased low.

The Aroclor surrogate decachlorobiphenyl (DCB) %R was greater than the quality control limit for the analysis of sample IOA-SS-EU12-0002. No validation action was taken as all sample Aroclors were non-detected.

Sample IOA-SS-EU22-0002 was re-analyzed and the re-analysis had surrogate %Rs for both surrogates greater than the quality control limit. The original sample IOA-SS-EU22-0002 analysis was reported.

COMPOUND QUANTIFICATION

Two analytes were reported with values of zero on the sample form Is and in the database. The reviewer amended the database to reflect the correct nondetected limit of detection (LOD).

ADDITIONAL COMMENTS

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

The laboratory abbreviated the sample identifications throughout the laboratory report due to a character limitation of the laboratory forms processing system. No action was taken for this issue.

Sample results were reported to the LOD but the LOD values were not summarized on the Form I summaries. The LODs were only present in the database.

Due to the lack of appropriate forms provided by the laboratory for all fractions analyzed, excessive time was spent by the data validation chemist paging through the raw data portion of the data package in order to get the necessary sample data required for data validation purposes.

It was noted in the laboratory chain of custody (COC) and the laboratory narrative that sample IOA-SS-EU20-002 was broken in transit and therefore not analyzed.

EXECUTIVE SUMMARY

Laboratory Performance: The sample extraction to analysis hold time of 40 days was exceeded for all soil PAH analyses resulting in qualification of all PAH sample data. VOC samples were qualified for method. VOC analyte results were qualified for initial calibration and continuing calibration quality control limit non-compliances. VOC non-detected analyte results were rejected and qualified for LCS quality control limit non-compliances. Sample IOA-SO-RIA33-SB10-0305 VOC analyte positive and non-detected results were qualified for internal standard quality control limit non-compliances. Sample IOA-SO-RIA33-SB10-0305 positive and non-detected results were qualified for surrogate %R quality control limit non-compliances.

Other Factors Affecting Data Quality: Positive results reported below the limit of quantitation (LOQ) but above the method detection limit were qualified as estimated, (J).

The data for these analyses were reviewed with reference to the EPA SW-846 Method 8260B for VOCs, 8270D for PAHs, and 8082 for PCBs, analytical and reporting protocols, "USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II" (12/96), and the (DOD) QSM document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech NUS
Joseph Kalinyak
Chemist/Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Regional Worksheets
Appendix D – Support Documentation

APPENDIX A

QUALIFIED LABORATORY RESULTS

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02073 SDG: 1108481 FRACTION: OV MEDIA: WATER	NSAMPLE	IOA-SO-TB01-081511
	LAB_ID	1108481-019A
	SAMP_DATE	8/15/2011
	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.6	U	
1,1,2,2-TETRACHLOROETHANE	0.6	U	
1,1,2-TRICHLOROETHANE	0.6	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.6	U	
1,1-DICHLOROETHANE	0.6	U	
1,1-DICHLOROETHENE	0.6	U	
1,2,4-TRICHLOROBENZENE	0.6	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U	
1,2-DIBROMOETHANE	0.6	U	
1,2-DICHLOROBENZENE	0.6	U	
1,2-DICHLOROETHANE	0.6	U	
1,2-DICHLOROPROPANE	0.6	U	
1,3-DICHLOROBENZENE	0.6	U	
1,4-DICHLOROBENZENE	0.6	U	
2-BUTANONE	2	J	P
2-HEXANONE	0.6	U	
4-METHYL-2-PENTANONE	0.6	U	
ACETONE	6		
BENZENE	0.6	U	
BROMODICHLOROMETHANE	0.6	U	
BROMOFORM	0.6	U	
BROMOMETHANE	0.6	U	
CARBON DISULFIDE	0.6	U	
CARBON TETRACHLORIDE	0.6	U	
CHLOROBENZENE	0.6	U	
CHLORODIBROMOMETHANE	0.6	U	
CHLOROETHANE	0.6	U	
CHLOROFORM	0.6	U	
CHLOROMETHANE	0.6	U	
CIS-1,2-DICHLOROETHENE	0.6	U	
CIS-1,3-DICHLOROPROPENE	0.6	U	
CYCLOHEXANE	1	U	
DICHLORODIFLUOROMETHANE	0.6	U	
ETHYLBENZENE	0.6	U	
ISOPROPYLBENZENE	0.6	U	

PROJ_NO: 02073 SDG: 1108481 FRACTION: OV MEDIA: WATER	NSAMPLE	IOA-SO-TB01-081511
	LAB_ID	1108481-019A
	SAMP_DATE	8/15/2011
	QC_TYPE	NM
	UNITS	UG/KG
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
M+P-XYLENES	1.2	U	
METHYL ACETATE	1	U	
METHYL CYCLOHEXANE	1	U	
METHYLENE CHLORIDE	0.6	U	
O-XYLENE	0.6	U	
STYRENE	0.6	U	
TETRACHLOROETHENE	0.6	U	
TOLUENE	0.6	U	
TOTAL XYLENES	1.5	U	
TRANS-1,2-DICHLOROETHENE	0.6	U	
TRANS-1,3-DICHLOROPROPENE	0.6	U	
TRICHLOROETHENE	0.6	U	
TRICHLOROFLUOROMETHANE	0.6	U	
VINYL CHLORIDE	0.6	U	

PROJ_NO: 02073	NSAMPLE	IOA-SO-DUP05-081511			IOA-SO-RIA33-SB02-0507			IOA-SO-RIA33-SB04-0305			IOA-SO-RIA33-SB08-0305		
SDG: 1108481	LAB_ID	1108481-015C			1108481-018C			1108481-013C			1108481-014C		
FRACTION: OV	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.9			94.1			97.2			97.8		
	DUP_OF	IOA-SO-RIA33-SB14-0507											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,1,2,2-TETRACHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,1,2-TRICHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,1-DICHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,1-DICHLOROETHENE		0.41	U		0.41	U		0.36	U		0.39	U	
1,2,4-TRICHLOROBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.69	U		0.69	U		0.61	U		0.64	U	
1,2-DIBROMOETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,2-DICHLOROBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
1,2-DICHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,2-DICHLOROPROPANE		0.41	U		0.41	U		0.36	U		0.39	U	
1,3-DICHLOROBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
1,4-DICHLOROBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
2-BUTANONE		3.4	U	A	3.5	U	A	3	U	A	3.2	U	A
2-HEXANONE		0.41	UJ	C	0.41	UJ	C	0.36	UJ	C	0.39	UJ	C
4-METHYL-2-PENTANONE		0.41	U		0.41	UJ	C	0.36	U		0.39	U	
ACETONE		31	U	A	28	U	A	14	U	A	13	U	A
BENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
BROMODICHLOROMETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
BROMOFORM		0.41	U		0.41	U		0.36	U		0.39	U	
BROMOMETHANE		0.41	UJ	C	0.41	UJ	C	0.36	UJ	C	0.39	UJ	C
CARBON DISULFIDE		0.41	U		0.41	U		0.36	U		0.39	U	
CARBON TETRACHLORIDE		0.41	U		0.41	U		0.36	U		0.39	U	
CHLOROBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
CHLORODIBROMOMETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
CHLOROETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
CHLOROFORM		0.41	U		0.41	U		0.36	U		0.39	U	
CHLOROMETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
CIS-1,2-DICHLOROETHENE		0.41	U		0.41	U		0.36	U		0.39	U	
CIS-1,3-DICHLOROPROPENE		0.41	U		0.41	U		0.36	U		0.39	U	
CYCLOHEXANE		0.69	U		0.69	U		0.61	U		0.64	U	
DICHLORODIFLUOROMETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
ETHYLBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	
ISOPROPYLBENZENE		0.41	U		0.41	U		0.36	U		0.39	U	

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA33-SB10-0305			IOA-SO-RIA33-SB14-0507			IOA-SO-TB01-081511		
SDG: 1108481	LAB_ID	1108481-016C			1108481-017C			1108481-019A		
FRACTION: OV	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.4			95.9			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		4	J	NR	0.48	U		0.6	U	
1,1,2,2-TETRACHLOROETHANE		0.48	UJ	NR	0.48	U		0.6	U	
1,1,2-TRICHLOROETHANE		0.48	UJ	NR	0.48	U		0.6	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.48	UJ	NR	0.48	U		0.6	U	
1,1-DICHLOROETHANE		3	J	NR	0.48	U		0.6	U	
1,1-DICHLOROETHENE		0.48	UJ	NR	0.48	U		0.6	U	
1,2,4-TRICHLOROBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.81	UJ	NR	0.8	U		1	U	
1,2-DIBROMOETHANE		0.48	UJ	NR	0.48	U		0.6	U	
1,2-DICHLOROBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
1,2-DICHLOROETHANE		0.48	UJ	DNR	0.48	U		0.6	U	
1,2-DICHLOROPROPANE		0.48	UJ	DNR	0.48	U		0.6	U	
1,3-DICHLOROBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
1,4-DICHLOROBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
2-BUTANONE		4	UJ	NR	4	U	A	2	J	P
2-HEXANONE		0.48	UJ	CNR	0.48	UJ	C	0.6	U	
4-METHYL-2-PENTANONE		0.48	UJ	NR	0.48	U		0.6	U	
ACETONE		9	U	A	37	U	A	6		
BENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
BROMODICHLOROMETHANE		0.48	UJ	DNR	0.48	U		0.6	U	
BROMOFORM		0.48	UJ	DNR	0.48	U		0.6	U	
BROMOMETHANE		0.48	UJ	CNR	0.48	UJ	C	0.6	U	
CARBON DISULFIDE		0.48	UJ	NR	0.48	U		0.6	U	
CARBON TETRACHLORIDE		0.48	UJ	NR	0.48	U		0.6	U	
CHLOROBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
CHLORODIBROMOMETHANE		0.48	UJ	DNR	0.48	U		0.6	U	
CHLOROETHANE		0.48	UJ	NR	0.48	U		0.6	U	
CHLOROFORM		0.48	UJ	NR	0.48	U		0.6	U	
CHLOROMETHANE		0.48	UJ	NR	0.48	U		0.6	U	
CIS-1,2-DICHLOROETHENE		0.48	UJ	DNR	0.48	U		0.6	U	
CIS-1,3-DICHLOROPROPENE		0.48	UJ	DNR	0.48	U		0.6	U	
CYCLOHEXANE		0.81	UJ	NR	0.8	U		1	U	
DICHLORODIFLUOROMETHANE		0.48	UJ	NR	0.48	U		0.6	U	
ETHYLBENZENE		0.48	UJ	DNR	0.48	U		0.6	U	
ISOPROPYLBENZENE		0.48	UJ	NR	0.48	U		0.6	U	

PROJ_NO: 02073	NSAMPLE	IOA-SO-DUP05-081511			IOA-SO-RIA33-SB02-0507			IOA-SO-RIA33-SB04-0305			IOA-SO-RIA33-SB08-0305		
SDG: 1108481	LAB_ID	1108481-015C			1108481-018C			1108481-013C			1108481-014C		
FRACTION: OV	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.9			94.1			97.2			97.8		
	DUP_OF	IOA-SO-RIA33-SB14-0507											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		0.83	U		0.83	U		0.73	U		0.77	U	
METHYL ACETATE		0.69	UR	E	0.69	U		0.61	UR	E	0.64	UR	E
METHYL CYCLOHEXANE		0.69	U		0.41	U		0.61	U		0.64	U	
METHYLENE CHLORIDE		0.41	UJ	C	0.41	UJ	CE	0.36	UJ	C	0.39	UJ	C
O-XYLENE		0.41	U		0.41	U		0.36	U		0.39	U	
STYRENE		0.41	U		0.41	U		0.36	U		0.39	U	
TETRACHLOROETHENE		0.41	U		0.41	U		0.36	U		0.39	U	
TOLUENE		0.41	U		0.41	U		0.36	U		0.39	U	
TOTAL XYLENES		1	U		1	U		0.91	U		0.97	U	
TRANS-1,2-DICHLOROETHENE		0.41	U		0.41	U		0.36	U		0.39	U	
TRANS-1,3-DICHLOROPROPENE		0.41	U		0.41	U		0.36	U		0.39	U	
TRICHLOROETHENE		0.41	U		0.41	U		0.36	U		0.39	U	
TRICHLOROFLUOROMETHANE		0.41	U		0.41	U		0.36	U		0.39	U	
VINYL CHLORIDE		0.41	U		0.41	U		0.36	U		0.39	U	

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA33-SB10-0305			IOA-SO-RIA33-SB14-0507			IOA-SO-TB01-081511		
SDG: 1108481	LAB_ID	1108481-016C			1108481-017C			1108481-019A		
FRACTION: OV	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.4			95.9			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		0.97	UJ	DNR	0.96	U		1.2	U	
METHYL ACETATE		0.81	UR	DE	0.8	UR	E	1	U	
METHYL CYCLOHEXANE		0.81	UJ	NR	0.8	U		1	U	
METHYLENE CHLORIDE		0.48	UR	D	0.48	UJ	C	0.6	U	
O-XYLENE		0.48	UJ	DNR	0.48	U		0.6	U	
STYRENE		0.48	UJ	DNR	0.48	U		0.6	U	
TETRACHLOROETHENE		0.48	UJ	NR	0.48	U		0.6	U	
TOLUENE		0.48	UJ	DNR	0.48	U		0.6	U	
TOTAL XYLENES		1.2	UJ	DNR	1.2	U		1.5	U	
TRANS-1,2-DICHLOROETHENE		0.48	UJ	DNR	0.48	U		0.6	U	
TRANS-1,3-DICHLOROPROPENE		0.48	UJ	DNR	0.48	U		0.6	U	
TRICHLOROETHENE		7	J	NR	0.48	U		0.6	U	
TRICHLOROFLUOROMETHANE		0.48	UJ	NR	0.48	U		0.6	U	
VINYL CHLORIDE		0.48	UJ	NR	0.48	U		0.6	U	

PROJ_NO: 02073	NSAMPLE	IOA-SO-DUP05-081511			IOA-SO-RIA33-SB02-0507			IOA-SO-RIA33-SB04-0305			IOA-SO-RIA33-SB08-0305		
SDG: 1108481	LAB_ID	1108481-015A			1108481-018A			1108481-013A			1108481-014A		
FRACTION: PAH	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.9			94.1			97.2			97.8		
	DUP_OF	IOA-SO-RIA33-SB14-0507											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		17	UJ	H	19	J	HP	17	UJ	H	17	UJ	H
ACENAPHTHENE		17	UJ	H	73	J	HP	17	UJ	H	17	UJ	H
ACENAPHTHYLENE		11	J	HP	55	J	HP	17	UJ	H	17	UJ	H
ANTHRACENE		29	J	HP	150	J	HP	17	UJ	H	17	UJ	H
BENZO(A)ANTHRACENE		110	J	HP	520	J	H	15	J	HP	17	UJ	H
BENZO(A)PYRENE		75	J	HP	380	J	H	9	J	HP	17	UJ	H
BENZO(B)FLUORANTHENE		130	J	HP	650	J	H	13	J	HP	17	UJ	H
BENZO(G,H,I)PERYLENE		47	J	HP	230	J	H	17	UJ	H	17	UJ	H
BENZO(K)FLUORANTHENE		52	J	HP	250	J	H	10	UJ	H	17	UJ	H
CHRYSENE		100	J	HP	550	J	H	13	J	HP	17	UJ	H
DIBENZO(A,H)ANTHRACENE		35	UJ	H	64	J	HP	34	UJ	H	34	UJ	H
FLUORANTHENE		200	J	H	870	J	H	24	J	HP	17	UJ	H
FLUORENE		11	J	HP	89	J	HP	17	UJ	H	17	UJ	H
INDENO(1,2,3-CD)PYRENE		40	J	HP	200	J	H	34	UJ	H	34	UJ	H
NAPHTHALENE		17	UJ	H	33	J	HP	17	UJ	H	17	UJ	H
PHENANTHRENE		120	J	HP	610	J	H	11	J	HP	17	UJ	H
PYRENE		160	J	HP	910	J	H	20	J	HP	17	UJ	H

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA33-SB10-0305			IOA-SO-RIA33-SB14-0507			IOA-SO-RIA82-01A-0608			IOA-SO-RIA82-02A-0608		
SDG: 1108481	LAB_ID	1108481-016A			1108481-017A			1108481-008A			1108481-009A		
FRACTION: PAH	SAMP_DATE	8/15/2011			8/15/2011			8/9/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.4			95.9			90.0			82.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		33	J	HP	7	J	HP	19	UJ	H	20	UJ	H
ACENAPHTHENE		19	J	HP	17	UJ	H	19	UJ	H	20	UJ	H
ACENAPHTHYLENE		17	UJ	H	15	J	HP	19	UJ	H	20	UJ	H
ANTHRACENE		41	J	HP	39	J	HP	19	UJ	H	20	UJ	H
BENZO(A)ANTHRACENE		220	J	H	140	J	HP	19	UJ	H	20	UJ	H
BENZO(A)PYRENE		170	J	HP	98	J	HP	19	UJ	H	20	UJ	H
BENZO(B)FLUORANTHENE		290	J	H	170	J	H	19	UJ	H	20	UJ	H
BENZO(G,H,I)PERYLENE		92	J	HP	60	J	HP	19	UJ	H	20	UJ	H
BENZO(K)FLUORANTHENE		100	J	HP	78	J	HP	19	UJ	H	20	UJ	H
CHRYSENE		240	J	H	140	J	HP	19	UJ	H	20	UJ	H
DIBENZO(A,H)ANTHRACENE		26	UJ	H	35	UJ	H	37	UJ	H	40	UJ	H
FLUORANTHENE		340	J	H	240	J	H	19	UJ	H	20	UJ	H
FLUORENE		17	J	HP	16	J	HP	19	UJ	H	20	UJ	H
INDENO(1,2,3-CD)PYRENE		86	J	HP	49	J	HP	37	UJ	H	40	UJ	H
NAPHTHALENE		11	J	HP	12	J	HP	19	UJ	H	20	UJ	H
PHENANTHRENE		190	J	H	150	J	HP	19	UJ	H	20	UJ	H
PYRENE		370	J	H	210	J	H	19	UJ	H	20	UJ	H

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA82-03A-0608			IOA-SO-RIA82-04A-0608			IOA-SS-DUP04-081111			IOA-SS-EU12-0002		
SDG: 1108481	LAB_ID	1108481-010A			1108481-011A			1108481-005A			1108481-007A		
FRACTION: PAH	SAMP_DATE	8/11/2011			8/11/2011			8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.6			89.0			86.6			92.7		
	DUP_OF							IOA-SS-EU32-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
ACENAPHTHENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
ACENAPHTHYLENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
ANTHRACENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
BENZO(A)ANTHRACENE		18	UJ	H	19	UJ	H	16	J	HP	99	J	HP
BENZO(A)PYRENE		18	UJ	H	19	UJ	H	15	J	HP	66	J	HP
BENZO(B)FLUORANTHENE		18	UJ	H	19	UJ	H	26	J	HP	100	J	HP
BENZO(G,H,I)PERYLENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
BENZO(K)FLUORANTHENE		18	UJ	H	19	UJ	H	12	J	HP	53	UJ	H
CHRYSENE		18	UJ	H	19	UJ	H	18	J	HP	91	J	HP
DIBENZO(A,H)ANTHRACENE		36	UJ	H	37	UJ	H	38	UJ	H	180	UJ	H
FLUORANTHENE		18	UJ	H	19	UJ	H	26	J	HP	150	J	HP
FLUORENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
INDENO(1,2,3-CD)PYRENE		36	UJ	H	37	UJ	H	38	UJ	H	180	UJ	H
NAPHTHALENE		18	UJ	H	19	UJ	H	19	UJ	H	90	UJ	H
PHENANTHRENE		18	UJ	H	19	UJ	H	19	UJ	H	63	J	HP
PYRENE		18	UJ	H	19	UJ	H	28	J	HP	170	J	HP

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU19-0002			IOA-SS-EU32-0002		
SDG: 1108481	LAB_ID	1108481-004A			1108481-003A		
FRACTION: PAH	SAMP_DATE	8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	89.4			89.5		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		19	UJ	H	19	UJ	H
ACENAPHTHENE		19	UJ	H	19	UJ	H
ACENAPHTHYLENE		19	UJ	H	19	UJ	H
ANTHRACENE		19	UJ	H	19	UJ	H
BENZO(A)ANTHRACENE		48	J	HP	20	J	HP
BENZO(A)PYRENE		46	J	HP	20	J	HP
BENZO(B)FLUORANTHENE		69	J	HP	48	J	HP
BENZO(G,H,I)PERYLENE		27	J	HP	19	UJ	H
BENZO(K)FLUORANTHENE		25	J	HP	20	J	HP
CHRYSENE		52	J	HP	33	J	HP
DIBENZO(A,H)ANTHRACENE		37	UJ	H	37	UJ	H
FLUORANTHENE		74	J	HP	49	J	HP
FLUORENE		19	UJ	H	19	UJ	H
INDENO(1,2,3-CD)PYRENE		37	UJ	H	37	UJ	H
NAPHTHALENE		19	UJ	H	19	UJ	H
PHENANTHRENE		27	J	HP	11	J	HP
PYRENE		97	J	HP	55	J	HP

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP04-081111			IOA-SS-EU12-0002			IOA-SS-EU19-0002			IOA-SS-EU21-0002		
SDG: 1108481	LAB_ID	1108481-005b			1108481-007b			1108481-004b			1108481-001a		
FRACTION: PCB	SAMP_DATE	8/11/2011			8/11/2011			8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	86.6			92.7			89.4			85.5		
	DUP_OF	IOA-SS-EU32-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1221		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1232		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1242		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1248		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1254		7.7	U		7.2	U		7.4	U		7.6	U	
AROCLOR-1260		7.7	U		7.2	U		7.4	U		7.6	U	
TOTAL AROCLOR		7.7	U		7.2	U		7.4	U		7.6	U	

PROJ_NO: 02073 SDG: 1108481 FRACTION: PCB MEDIA: SOIL	NSAMPLE	IOA-SS-EU22-0002			IOA-SS-EU32-0002		
	LAB_ID	1108481-006a			1108481-003b		
	SAMP_DATE	8/11/2011			8/11/2011		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	81.0			89.5		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		8.2	U		7.4	U	
AROCLOR-1221		8.2	U		7.4	U	
AROCLOR-1232		8.2	U		7.4	U	
AROCLOR-1242		8.2	U		7.4	U	
AROCLOR-1248		8.2	U		7.4	U	
AROCLOR-1254		8.2	U		7.4	U	
AROCLOR-1260		10	J	P	7.4	U	
TOTAL AROCLOR		10	J	P	7.4	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

RTI
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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,000,000	150,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Arsenic	1,500	220		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Barium	14,000	3,700		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Beryllium	420	300		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Cadmium	200	150		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Chromium	7,300	1,500		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Cobalt	6,600	740		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Copper	8,300	740		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Iron	14,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Lead	7,500	150		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Magnesium	2,200,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Manganese	320,000	15,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Nickel	7,100	1,500		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Potassium	400,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Selenium	370	740	J	µg/Kg-dry	20	9/8/2011 10:48:10 AM
Sodium	47,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:27:58 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:48:10 AM
Vanadium	14,000	590		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Zinc	36,000	7,400		µg/Kg-dry	20	9/8/2011 10:48:10 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	450	200		µg/Kg-dry	10	9/8/2011 6:44:02 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:44:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	8.5	29	J	µg/Kg-dry	1	8/24/2011 2:56:36 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 6:58:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	11	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Anthracene	29	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Benzo(a)anthracene	110	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Benzo(a)pyrene	75	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Benzo(b)fluoranthene	130	170	JmH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Benzo(g,h,i)perylene	47	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Benzo(k)fluoranthene	52	170	JmH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Chrysene	100	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Fluoranthene	200	170	H	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Fluorene	11	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Indeno(1,2,3-cd)pyrene	40	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Phenanthrene	120	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Pyrene	160	170	JH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
Surr: 2-Fluorobiphenyl	57.6	45-105	H	%REC	1	10/7/2011 6:58:00 PM
Surr: Nitrobenzene-d5	59.5	35-100	H	%REC	1	10/7/2011 6:58:00 PM
Surr: Terphenyl-d14	73.5	30-125	H	%REC	1	10/7/2011 6:58:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,1,2,2-Tetrachloroethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,1,2-Trichloroethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,1-Dichloroethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,1-Dichloroethene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,2,4-Trichlorobenzene	ND	1.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,2-Dibromo-3-chloropropane	ND	1.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,2-Dichlorobenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,2-Dichloroethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,2-Dichloropropane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,3-Dichlorobenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
1,4-Dichlorobenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
2-Hexanone	ND	3.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	31	3.4	B	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Benzene	ND	0.41	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Bromodichloromethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Bromoform	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Bromomethane	ND	2.8	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Carbon disulfide	ND	3.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Carbon tetrachloride	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Chlorobenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Chloroethane	ND	3.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Chloroform	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Chloromethane	ND	1.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
cis-1,2-Dichloroethene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
cis-1,3-Dichloropropene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Cyclohexane	ND	3.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Dibromochloromethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Dichlorodifluoromethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
EDB	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Ethylbenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Freon-113	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Isopropylbenzene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
m,p-Xylene	ND	1.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
MEK	2.9	6.9	J	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Methyl Acetate	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Methylcyclohexane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Methylene chloride	ND	1.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
MIBK	ND	3.4	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
o-Xylene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Styrene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Tetrachloroethene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Toluene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
trans-1,2-Dichloroethene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
trans-1,3-Dichloropropene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Trichloroethene	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Trichlorofluoromethane	ND	0.69	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.55	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Xylenes, Total	ND	2.1	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Surr: 4-Bromofluorobenzene	99.4	90.5-116		%REC	0.66	8/19/2011 10:44:00 PM
Surr: Dibromofluoromethane	88.2	85-115		%REC	0.66	8/19/2011 10:44:00 PM
Surr: Toluene-d8	93.7	87.2-110		%REC	0.66	8/19/2011 10:44:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.1	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,300,000	170,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Arsenic	1,900	260		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Barium	16,000	4,400		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Beryllium	370	350		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Cadmium	190	170		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Calcium	1,500,000	170,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Chromium	10,000	1,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Cobalt	4,300	870		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Copper	9,600	870		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Iron	13,000,000	700,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Lead	20,000	170		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Magnesium	2,100,000	87,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Manganese	240,000	17,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Nickel	8,500	1,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Potassium	290,000	87,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Selenium	310	870	J	µg/Kg-dry	20	9/8/2011 10:53:45 AM
Sodium	57,000	87,000	J	µg/Kg-dry	20	9/8/2011 12:29:37 PM
Thallium	ND	350	U	µg/Kg-dry	20	9/8/2011 10:53:45 AM
Vanadium	20,000	700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Zinc	42,000	8,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	300	230		µg/Kg-dry	10	9/8/2011 6:45:35 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:45:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	18	31	J	µg/Kg-dry	1	8/24/2011 2:59:36 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	19	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Acenaphthene	73	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	55	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Anthracene	150	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Benzo(a)anthracene	520	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Benzo(a)pyrene	380	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Benzo(b)fluoranthene	650	170	mH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Benzo(g,h,i)perylene	230	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Benzo(k)fluoranthene	250	170	mH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Chrysene	550	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Dibenzo (a,h) anthracene	64	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Fluoranthene	870	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Fluorene	89	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Indeno(1,2,3-cd)pyrene	200	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Naphthalene	33	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Phenanthrene	610	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Pyrene	910	170	H	µg/Kg-dry	1	10/7/2011 8:09:00 PM
Surr: 2-Fluorobiphenyl	68.6	45-105	H	%REC	1	10/7/2011 8:09:00 PM
Surr: Nitrobenzene-d5	73.0	35-100	H	%REC	1	10/7/2011 8:09:00 PM
Surr: Terphenyl-d14	83.9	30-125	H	%REC	1	10/7/2011 8:09:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,1,2,2-Tetrachloroethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,1,2-Trichloroethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,1-Dichloroethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,1-Dichloroethene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,2,4-Trichlorobenzene	ND	1.4	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,2-Dibromo-3-chloropropane	ND	1.4	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,2-Dichlorobenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,2-Dichloroethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,2-Dichloropropane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,3-Dichlorobenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
1,4-Dichlorobenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
2-Hexanone	ND	3.5	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

94.08

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	28	3.5	H	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Benzene	ND	0.41	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Bromodichloromethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Bromoform	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Bromomethane	ND	2.8	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Carbon disulfide	ND	3.5	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Carbon tetrachloride	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Chlorobenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Chloroethane	ND	3.5	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Chloroform	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Chloromethane	ND	1.4	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
cis-1,2-Dichloroethene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
cis-1,3-Dichloropropene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Cyclohexane	ND	3.5	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Dibromochloromethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Dichlorodifluoromethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
EDB	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Ethylbenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Freon-113	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Isopropylbenzene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
m,p-Xylene	ND	1.4	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
MEK	2.2	6.9	JH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Methyl Acetate	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Methylcyclohexane	ND	0	H	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Methylene chloride	ND	1.4	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
MIBK	ND	3.5	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
o-Xylene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Styrene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Tetrachloroethene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Toluene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
trans-1,2-Dichloroethene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
trans-1,3-Dichloropropene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Trichloroethene	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Trichlorofluoromethane	ND	0.69	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.55	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Xylenes, Total	ND	2.1	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Surr: 4-Bromofluorobenzene	95.3	90.5-116	H	%REC	0.65	8/29/2011 9:05:00 PM
Surr: Dibromofluoromethane	90.1	85-115	H	%REC	0.65	8/29/2011 9:05:00 PM
Surr: Toluene-d8	88.0	87.2-110	H	%REC	0.65	8/29/2011 9:05:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	5.9	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,800,000	170,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Arsenic	1,700	260		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Barium	13,000	4,400		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Beryllium	400	350		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Cadmium	180	170		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Calcium	1,000,000	170,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Chromium	11,000	1,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Cobalt	4,700	870		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Copper	9,700	870		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Iron	14,000,000	700,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Lead	6,600	170		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Magnesium	2,400,000	87,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Manganese	170,000	17,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Nickel	7,800	1,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Potassium	440,000	87,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Selenium	450	870	J	µg/Kg-dry	20	9/8/2011 10:44:58 AM
Sodium	50,000	87,000	J	µg/Kg-dry	20	9/8/2011 12:26:18 PM
Thallium	ND	350	U	µg/Kg-dry	20	9/8/2011 10:44:58 AM
Vanadium	15,000	700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Zinc	38,000	8,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	83	210	J	µg/Kg-dry	10	9/8/2011 6:42:29 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:42:29 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.2	29	J	µg/Kg-dry	1	8/24/2011 2:50:49 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Acenaphthene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Anthracene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Benzo(a)anthracene	15	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Benzo(a)pyrene	9.2	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Benzo(b)fluoranthene	13	160	JmH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Benzo(g,h,i)perylene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Benzo(k)fluoranthene	ND	160	mUH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Chrysene	13	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Dibenzo (a,h) anthracene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Fluoranthene	24	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Fluorene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Indeno(1,2,3-cd)pyrene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Naphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Phenanthrene	11	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Pyrene	20	160	JH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
Surr: 2-Fluorobiphenyl	67.7	45-105	H	%REC	1	10/7/2011 6:11:00 PM
Surr: Nitrobenzene-d5	72.3	35-100	H	%REC	1	10/7/2011 6:11:00 PM
Surr: Terphenyl-d14	77.8	30-125	H	%REC	1	10/7/2011 6:11:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,1,2,2-Tetrachloroethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,1,2-Trichloroethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,1-Dichloroethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,1-Dichloroethene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,2,4-Trichlorobenzene	ND	1.2	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,2-Dibromo-3-chloropropane	ND	1.2	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,2-Dichlorobenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,2-Dichloroethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,2-Dichloropropane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,3-Dichlorobenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
1,4-Dichlorobenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
2-Hexanone	ND	3.0	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	14	3.0	B	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Benzene	ND	0.36	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Bromodichloromethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Bromoform	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Bromomethane	ND	2.4	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Carbon disulfide	ND	3.0	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Carbon tetrachloride	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Chlorobenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Chloroethane	ND	3.0	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Chloroform	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Chloromethane	ND	1.2	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
cis-1,2-Dichloroethene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
cis-1,3-Dichloropropene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Cyclohexane	ND	3.0	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Dibromochloromethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Dichlorodifluoromethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
EDB	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Ethylbenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Freon-113	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Isopropylbenzene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
m,p-Xylene	ND	1.2	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
MEK	2.0	6.1	J	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Methyl Acetate	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Methylcyclohexane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Methylene chloride	ND	1.2	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
MIBK	ND	3.0	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
o-Xylene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Styrene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Tetrachloroethene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Toluene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
trans-1,2-Dichloroethene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
trans-1,3-Dichloropropene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Trichloroethene	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Trichlorofluoromethane	ND	0.61	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.49	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Xylenes, Total	ND	1.8	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Surr: 4-Bromofluorobenzene	96.6	90.5-116		%REC	0.59	8/19/2011 9:51:00 PM
Surr: Dibromofluoromethane	92.9	85-115		%REC	0.59	8/19/2011 9:51:00 PM
Surr: Toluene-d8	89.5	87.2-110		%REC	0.59	8/19/2011 9:51:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	2.8	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,300,000	150,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Arsenic	1,700	220		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Barium	12,000	3,700		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Beryllium	540	300		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Cadmium	190	150		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Chromium	9,700	1,500		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Cobalt	3,900	740		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Copper	9,400	740		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Iron	18,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Lead	6,500	150		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Magnesium	2,300,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Manganese	310,000	15,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Nickel	7,800	1,500		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Potassium	360,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Selenium	ND	740	U	µg/Kg-dry	20	9/8/2011 10:46:34 AM
Sodium	52,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:27:08 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:46:34 AM
Vanadium	16,000	590		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Zinc	40,000	7,400		µg/Kg-dry	20	9/8/2011 10:46:34 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	56	200	J	µg/Kg-dry	10	9/8/2011 6:43:15 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:43:15 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	30	J	µg/Kg-dry	1	8/24/2011 2:52:18 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Acenaphthene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Anthracene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Benzo(a)anthracene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Benzo(a)pyrene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Benzo(b)fluoranthene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Benzo(g,h,i)perylene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Benzo(k)fluoranthene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Chrysene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Dibenzo (a,h) anthracene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Fluoranthene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Fluorene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Indeno(1,2,3-cd)pyrene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Naphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Phenanthrene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Pyrene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
Surr: 2-Fluorobiphenyl	60.2	45-105	H	%REC	1	10/7/2011 6:35:00 PM
Surr: Nitrobenzene-d5	63.2	35-100	H	%REC	1	10/7/2011 6:35:00 PM
Surr: Terphenyl-d14	70.2	30-125	H	%REC	1	10/7/2011 6:35:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,1,2,2-Tetrachloroethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,1,2-Trichloroethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,1-Dichloroethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,1-Dichloroethene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,2,4-Trichlorobenzene	ND	1.3	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,2-Dibromo-3-chloropropane	ND	1.3	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,2-Dichlorobenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,2-Dichloroethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,2-Dichloropropane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,3-Dichlorobenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
1,4-Dichlorobenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
2-Hexanone	ND	3.2	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	13	3.2	B	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Benzene	ND	0.39	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Bromodichloromethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Bromoform	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Bromomethane	ND	2.6	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Carbon disulfide	ND	3.2	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Carbon tetrachloride	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Chlorobenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Chloroethane	ND	3.2	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Chloroform	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Chloromethane	ND	1.3	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
cis-1,2-Dichloroethene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
cis-1,3-Dichloropropene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Cyclohexane	ND	3.2	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Dibromochloromethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Dichlorodifluoromethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
EDB	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Ethylbenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Freon-113	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Isopropylbenzene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
m,p-Xylene	ND	1.3	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
MEK	2.8	6.4	J	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Methyl Acetate	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Methylcyclohexane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Methylene chloride	ND	1.3	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
MIBK	ND	3.2	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
o-Xylene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Styrene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Tetrachloroethene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Toluene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
trans-1,2-Dichloroethene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
trans-1,3-Dichloropropene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Trichloroethene	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Trichlorofluoromethane	ND	0.64	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.52	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Xylenes, Total	ND	1.9	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Surr: 4-Bromofluorobenzene	98.6	90.5-116		%REC	0.63	8/19/2011 10:18:00 PM
Surr: Dibromofluoromethane	91.9	85-115		%REC	0.63	8/19/2011 10:18:00 PM
Surr: Toluene-d8	93.9	87.2-110		%REC	0.63	8/19/2011 10:18:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	2.2	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,700,000	140,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Arsenic	2,300	210		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Barium	17,000	3,500		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Beryllium	520	280		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Cadmium	280	140		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Calcium	1,700,000	140,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Chromium	8,900	1,400		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Cobalt	4,700	690		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Copper	12,000	690		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Iron	11,000,000	560,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Lead	16,000	140		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Magnesium	2,000,000	69,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Manganese	180,000	14,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Nickel	8,900	1,400		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Potassium	360,000	69,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Selenium	530	690	J	µg/Kg-dry	20	9/8/2011 10:23:37 AM
Sodium	58,000	69,000	J	µg/Kg-dry	20	9/8/2011 11:59:53 AM
Thallium	90	280	J	µg/Kg-dry	20	9/8/2011 10:23:37 AM
Vanadium	15,000	560		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Zinc	40,000	6,900		µg/Kg-dry	20	9/8/2011 10:23:37 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	230	J	µg/Kg-dry	10	9/8/2011 6:30:48 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:30:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	29	J	µg/Kg-dry	1	8/24/2011 2:31:48 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	33	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Acenaphthene	19	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Anthracene	41	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Benzo(a)anthracene	220	170	H	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Benzo(a)pyrene	170	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Benzo(b)fluoranthene	290	170	mH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Benzo(g,h,i)perylene	92	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Benzo(k)fluoranthene	100	170	JmH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Chrysene	240	170	H	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Dibenzo (a,h) anthracene	ND	170	mUH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Fluoranthene	340	170	H	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Fluorene	17	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Indeno(1,2,3-cd)pyrene	86	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Naphthalene	11	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Phenanthrene	190	170	H	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Pyrene	370	170	H	µg/Kg-dry	1	10/7/2011 7:22:00 PM
Surr: 2-Fluorobiphenyl	66.8	45-105	H	%REC	1	10/7/2011 7:22:00 PM
Surr: Nitrobenzene-d5	67.8	35-100	H	%REC	1	10/7/2011 7:22:00 PM
Surr: Terphenyl-d14	87.6	30-125	H	%REC	1	10/7/2011 7:22:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	4.8	0.81		µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,1,2,2-Tetrachloroethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,1,2-Trichloroethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,1-Dichloroethane	3.0	0.81		µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,1-Dichloroethene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,2,4-Trichlorobenzene	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,2-Dibromo-3-chloropropane	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,2-Dichlorobenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,2-Dichloroethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,2-Dichloropropane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,3-Dichlorobenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
1,4-Dichlorobenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
2-Hexanone	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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Original

95.43

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	9.2	4.0	B	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Benzene	ND	0.48	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Bromodichloromethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Bromoform	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Bromomethane	ND	3.2	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Carbon disulfide	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Carbon tetrachloride	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Chlorobenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Chloroethane	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Chloroform	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Chloromethane	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
cis-1,2-Dichloroethene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
cis-1,3-Dichloropropene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Cyclohexane	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Dibromochloromethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Dichlorodifluoromethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
EDB	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Ethylbenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Freon-113	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Isopropylbenzene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
m,p-Xylene	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
MEK	ND	8.1	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Methyl Acetate	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Methylcyclohexane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Methylene chloride	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
MIBK	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
o-Xylene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Styrene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Tetrachloroethene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Toluene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
trans-1,2-Dichloroethene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
trans-1,3-Dichloropropene	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Trichloroethene	7.1	0.81		µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Trichlorofluoromethane	ND	0.81	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM

Qualifiers:

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ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
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PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.65	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Xylenes, Total	ND	2.4	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Surr: 4-Bromofluorobenzene	110	90.5-116		%REC	0.77	8/19/2011 7:36:00 PM
Surr: Dibromofluoromethane	83.3	85-115	S	%REC	0.77	8/19/2011 7:36:00 PM
Surr: Toluene-d8	73.7	87.2-110	S	%REC	0.77	8/19/2011 7:36:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.6	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

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Analytical Report

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WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,900,000	180,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Arsenic	1,500	270		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Barium	15,000	4,500		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Beryllium	380	360		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Cadmium	180	180	J	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Chromium	9,200	1,800		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Cobalt	6,800	900		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Copper	9,000	900		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Iron	14,000,000	720,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Lead	8,100	180		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Magnesium	2,400,000	90,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Manganese	320,000	18,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Nickel	8,900	1,800		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Potassium	360,000	90,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Selenium	ND	900	U	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Sodium	46,000	90,000	J	µg/Kg-dry	20	9/8/2011 12:28:47 PM
Thallium	ND	360	U	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Vanadium	15,000	720		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Zinc	33,000	9,000		µg/Kg-dry	20	9/8/2011 10:49:46 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	530	210		µg/Kg-dry	10	9/8/2011 6:44:48 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:44:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.7	32	J	µg/Kg-dry	1	8/24/2011 2:58:09 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	7.6	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:46:00 PM

Qualifiers:

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	15	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Anthracene	39	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Benzo(a)anthracene	140	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Benzo(a)pyrene	98	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Benzo(b)fluoranthene	170	170	mH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Benzo(g,h,i)perylene	60	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Benzo(k)fluoranthene	78	170	JmH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Chrysene	140	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Fluoranthene	240	170	H	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Fluorene	16	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Indeno(1,2,3-cd)pyrene	49	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Naphthalene	12	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Phenanthrene	150	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Pyrene	210	170	H	µg/Kg-dry	1	10/7/2011 7:46:00 PM
Surr: 2-Fluorobiphenyl	74.7	45-105	H	%REC	1	10/7/2011 7:46:00 PM
Surr: Nitrobenzene-d5	78.6	35-100	H	%REC	1	10/7/2011 7:46:00 PM
Surr: Terphenyl-d14	91.6	30-125	H	%REC	1	10/7/2011 7:46:00 PM
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,1,2,2-Tetrachloroethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,1,2-Trichloroethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,1-Dichloroethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,1-Dichloroethene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,2,4-Trichlorobenzene	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,2-Dibromo-3-chloropropane	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,2-Dichlorobenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,2-Dichloroethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,2-Dichloropropane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,3-Dichlorobenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
1,4-Dichlorobenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
2-Hexanone	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

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WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Acetone	37	4.0	B	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Benzene	ND	0.48	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Bromodichloromethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Bromoform	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Bromomethane	ND	3.2	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Carbon disulfide	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Carbon tetrachloride	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Chlorobenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Chloroethane	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Chloroform	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Chloromethane	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
cis-1,2-Dichloroethene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
cis-1,3-Dichloropropene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Cyclohexane	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Dibromochloromethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Dichlorodifluoromethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
EDB	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Ethylbenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Freon-113	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Isopropylbenzene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
m,p-Xylene	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
MEK	3.9	8.0	J	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Methyl Acetate	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Methylcyclohexane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Methylene chloride	ND	1.6	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
MIBK	ND	4.0	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
o-Xylene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Styrene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Tetrachloroethene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Toluene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
trans-1,2-Dichloroethene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
trans-1,3-Dichloropropene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Trichloroethene	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Trichlorofluoromethane	ND	0.80	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.64	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Xylenes, Total	ND	2.4	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Surr: 4-Bromofluorobenzene	98.3	90.5-116		%REC	0.77	8/19/2011 11:11:00 PM
Surr: Dibromofluoromethane	90.4	85-115		%REC	0.77	8/19/2011 11:11:00 PM
Surr: Toluene-d8	95.6	87.2-110		%REC	0.77	8/19/2011 11:11:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.1	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 3:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-008 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-01A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	3,600,000	170,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Arsenic	220	250	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Barium	7,800	4,100		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Beryllium	170	330	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Cadmium	74	170	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Calcium	820,000	170,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Chromium	4,700	1,700		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Cobalt	1,900	830		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Copper	3,600	830		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Iron	4,900,000	660,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Lead	2,600	170		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Magnesium	1,100,000	83,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Manganese	65,000	17,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Nickel	3,800	1,700		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Potassium	250,000	83,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Selenium	320	830	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Sodium	36,000	83,000	J	µg/Kg-dry	20	9/8/2011 12:22:58 PM
Thallium	ND	330	U	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Vanadium	8,500	660		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Zinc	17,000	8,300		µg/Kg-dry	20	9/8/2011 10:38:33 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	66	210	J	µg/Kg-dry	10	9/8/2011 6:34:44 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:34:44 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	31	U	µg/Kg-dry	1	8/24/2011 2:41:54 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 3:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-008 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-01A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Surr: 2-Fluorobiphenyl	63.2	45-105	H	%REC	1	10/7/2011 6:43:00 PM
Surr: Nitrobenzene-d5	67.1	35-100	H	%REC	1	10/7/2011 6:43:00 PM
Surr: Terphenyl-d14	87.4	30-125	H	%REC	1	10/7/2011 6:43:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-009 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-02A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,200,000	150,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Arsenic	180	220	J	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Barium	11,000	3,700		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Beryllium	260	300	J	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Cadmium	150	150		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Calcium	1,300,000	150,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Chromium	6,300	1,500		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Cobalt	2,300	740		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Copper	4,600	740		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Iron	6,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Lead	3,600	150		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Magnesium	1,300,000	74,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Manganese	90,000	15,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Nickel	4,500	1,500		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Potassium	310,000	74,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Selenium	ND	740	U	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Sodium	51,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:23:49 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Vanadium	11,000	590		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Zinc	19,000	7,400		µg/Kg-dry	20	9/8/2011 10:40:10 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	94	220	J	µg/Kg-dry	10	9/8/2011 6:40:09 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:40:09 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	38	U	µg/Kg-dry	1	8/24/2011 2:46:24 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Acenaphthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-009 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-02A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(a)anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(a)pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(b)fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(g,h,i)perylene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(k)fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Chrysene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Phenanthrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Surr: 2-Fluorobiphenyl	62.2	45-105	H	%REC	1	10/7/2011 7:06:00 PM
Surr: Nitrobenzene-d5	74.4	35-100	H	%REC	1	10/7/2011 7:06:00 PM
Surr: Terphenyl-d14	94.0	30-125	H	%REC	1	10/7/2011 7:06:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	18	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:55:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-010 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-03A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,600,000	130,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Arsenic	570	190		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Barium	9,800	3,200		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Beryllium	270	260		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Cadmium	140	130		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Calcium	1,000,000	130,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Chromium	6,200	1,300		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Cobalt	2,600	650		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Copper	6,100	650		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Iron	7,100,000	520,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Lead	3,500	130		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Magnesium	1,600,000	65,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Manganese	92,000	13,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Nickel	5,100	1,300		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Potassium	310,000	65,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Selenium	ND	650	U	µg/Kg-dry	20	9/8/2011 10:41:47 AM
Sodium	41,000	65,000	J	µg/Kg-dry	20	9/8/2011 12:24:40 PM
Thallium	ND	260	U	µg/Kg-dry	20	9/8/2011 10:41:47 AM
Vanadium	12,000	520		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Zinc	26,000	6,500		µg/Kg-dry	20	9/8/2011 10:41:47 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	69	200	J	µg/Kg-dry	10	9/8/2011 6:40:57 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:40:57 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	32	U	µg/Kg-dry	1	8/24/2011 2:47:52 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Acenaphthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:55:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-010 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-03A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(a)anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(a)pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(b)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(g,h,i)perylene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(k)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Chrysene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Phenanthrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Surr: 2-Fluorobiphenyl	64.8	45-105	H	%REC	1	10/7/2011 7:30:00 PM
Surr: Nitrobenzene-d5	69.8	35-100	H	%REC	1	10/7/2011 7:30:00 PM
Surr: Terphenyl-d14	83.3	30-125	H	%REC	1	10/7/2011 7:30:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.4	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 10:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-011 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-04A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,400,000	180,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Arsenic	130	270	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Barium	9,500	4,500		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Beryllium	260	360	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Cadmium	110	180	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Chromium	5,500	1,800		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Cobalt	2,600	910		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Copper	6,500	910		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Iron	6,000,000	730,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Lead	3,500	180		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Magnesium	1,400,000	91,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Manganese	82,000	18,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Nickel	5,000	1,800		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Potassium	270,000	91,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Selenium	ND	910	U	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Sodium	43,000	91,000	J	µg/Kg-dry	20	9/8/2011 12:25:29 PM
Thallium	ND	360	U	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Vanadium	9,200	730		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Zinc	23,000	9,100		µg/Kg-dry	20	9/8/2011 10:43:22 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	65	200	J	µg/Kg-dry	10	9/8/2011 6:41:43 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:41:43 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	30	U	µg/Kg-dry	1	8/24/2011 2:49:20 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 10:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-011 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-04A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Surr: 2-Fluorobiphenyl	75.9	45-105	H	%REC	1	10/7/2011 7:53:00 PM
Surr: Nitrobenzene-d5	81.2	35-100	H	%REC	1	10/7/2011 7:53:00 PM
Surr: Terphenyl-d14	99.6	30-125	H	%REC	1	10/7/2011 7:53:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-005 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP04-081111

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 2:30:44 PM
Surr: Decachlorobiphenyl	118	60-125		%REC	1	8/19/2011 2:30:44 PM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 2:30:44 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,500,000	170,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Arsenic	1,200	260		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Barium	14,000	4,300		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Beryllium	320	340	J	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Cadmium	150	170	J	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Calcium	710,000	170,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Chromium	5,200	1,700		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Cobalt	3,600	860		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Copper	7,400	860		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Iron	8,100,000	680,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Lead	6,500	170		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Magnesium	1,600,000	86,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Manganese	230,000	17,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Nickel	5,500	1,700		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Potassium	250,000	86,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Selenium	ND	860	U	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Sodium	34,000	86,000	J	µg/Kg-dry	20	9/8/2011 12:02:41 PM
Thallium	ND	340	U	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Vanadium	11,000	680		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Zinc	29,000	8,600		µg/Kg-dry	20	9/8/2011 10:28:26 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-005 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP04-081111

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	72	170	J	µg/Kg-dry	10	9/8/2011 6:33:09 PM
Silver	ND	100	U	µg/Kg-dry	10	9/8/2011 6:33:09 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	35	J	µg/Kg-dry	1	8/24/2011 2:39:00 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(a)anthracene	16	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(a)pyrene	15	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(b)fluoranthene	26	180	JmH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(k)fluoranthene	12	180	JmH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Chrysene	18	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Fluoranthene	26	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Pyrene	28	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Surr: 2-Fluorobiphenyl	64.3	45-105	H	%REC	1	10/7/2011 5:56:00 PM
Surr: Nitrobenzene-d5	73.6	35-100	H	%REC	1	10/7/2011 5:56:00 PM
Surr: Terphenyl-d14	90.9	30-125	H	%REC	1	10/7/2011 5:56:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	13	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU12-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/29/2011 5:03:51 AM
Surr: Decachlorobiphenyl	136	60-125	S	%REC	1	8/29/2011 5:03:51 AM
Surr: Tetrachloro-m-xylene	124	60-125		%REC	1	8/29/2011 5:03:51 AM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,600,000	200,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Arsenic	1,200	300		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Barium	15,000	5,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Beryllium	350	400	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Cadmium	190	200	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Calcium	1,400,000	200,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Chromium	9,200	2,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Cobalt	3,900	1,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Copper	7,100	1,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Iron	13,000,000	810,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Lead	11,000	200		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Magnesium	1,900,000	100,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Manganese	220,000	20,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Nickel	7,200	2,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Potassium	340,000	100,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Selenium	750	1,000	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Sodium	43,000	100,000	J	µg/Kg-dry	20	9/8/2011 12:03:32 PM
Thallium	ND	400	U	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Vanadium	15,000	810		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Zinc	33,000	10,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU12-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	89	210	J	µg/Kg-dry	10	9/8/2011 6:33:56 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:33:56 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	17	31	J	µg/Kg-dry	1	8/24/2011 2:40:27 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Acenaphthene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Acenaphthylene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Anthracene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(a)anthracene	99	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(a)pyrene	66	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(b)fluoranthene	100	860	JmH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(g,h,i)perylene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(k)fluoranthene	ND	860	mUH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Chrysene	91	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Dibenzo (a,h) anthracene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Fluoranthene	150	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Fluorene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Indeno(1,2,3-cd)pyrene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Naphthalene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Phenanthrene	63	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Pyrene	170	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Surr: 2-Fluorobiphenyl	83.0	45-105	H	%REC	5	10/7/2011 6:20:00 PM
Surr: Nitrobenzene-d5	81.4	35-100	H	%REC	5	10/7/2011 6:20:00 PM
Surr: Terphenyl-d14	101	30-125	H	%REC	5	10/7/2011 6:20:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.3	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU19-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 2:06:36 PM
Surr: Decachlorobiphenyl	105	60-125		%REC	1	8/19/2011 2:06:36 PM
Surr: Tetrachloro-m-xylene	99.3	60-125		%REC	1	8/19/2011 2:06:36 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,400,000	160,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Arsenic	5,900	230		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Barium	21,000	3,900		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Beryllium	340	310		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Cadmium	210	160		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Calcium	810,000	160,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Chromium	8,900	1,600		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Cobalt	3,900	780		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Copper	8,500	780		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Iron	10,000,000	620,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Lead	27,000	160		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Magnesium	1,700,000	78,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Manganese	180,000	16,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Nickel	8,000	1,600		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Potassium	240,000	78,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Selenium	230	780	J	µg/Kg-dry	20	9/8/2011 10:26:50 AM
Sodium	38,000	78,000	J	µg/Kg-dry	20	9/8/2011 12:01:51 PM
Thallium	ND	310	U	µg/Kg-dry	20	9/8/2011 10:26:50 AM
Vanadium	15,000	620		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Zinc	35,000	7,800		µg/Kg-dry	20	9/8/2011 10:26:50 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU19-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	97	210	J	µg/Kg-dry	10	9/8/2011 6:32:22 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:32:22 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	31	30		µg/Kg-dry	1	8/24/2011 2:37:33 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(a)anthracene	48	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(a)pyrene	46	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(b)fluoranthene	69	180	JmH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(g,h,i)perylene	27	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(k)fluoranthene	25	180	JmH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Chrysene	52	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Fluoranthene	74	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Phenanthrene	27	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Pyrene	97	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Surr: 2-Fluorobiphenyl	74.6	45-105	H	%REC	1	10/7/2011 5:33:00 PM
Surr: Nitrobenzene-d5	82.1	35-100	H	%REC	1	10/7/2011 5:33:00 PM
Surr: Terphenyl-d14	107	30-125	H	%REC	1	10/7/2011 5:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:10:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-001 **Matrix:** SOIL

Client Sample ID IOA-SS-EU21-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 1:18:14 PM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 1:18:14 PM
Surr: Decachlorobiphenyl	107	60-125		%REC	1	8/19/2011 1:18:14 PM
Surr: Tetrachloro-m-xylene	97.7	60-125		%REC	1	8/19/2011 1:18:14 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	15	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:55:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-006 **Matrix:** SOIL

Client Sample ID IOA-SS-EU22-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1221	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1232	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1242	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1248	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1254	ND	41	U	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Aroclor 1260	10	41	J	µg/Kg-dry	1	8/19/2011 2:54:59 PM
Total PCBs	10	41		µg/Kg-dry	1	8/19/2011 2:54:59 PM
Surr: Decachlorobiphenyl	105	60-125		%REC	1	8/19/2011 2:54:59 PM
Surr: Tetrachloro-m-xylene	96.7	60-125		%REC	1	8/19/2011 2:54:59 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	19	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 3:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-012 **Matrix:** SOIL

Client Sample ID IOA-SS-EU22-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1221	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1232	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1242	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1248	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1254	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Aroclor 1260	ND	34	U	µg/Kg-dry	1	8/29/2011 5:28:01 AM
Total PCBs	ND	34		µg/Kg-dry	1	8/29/2011 5:28:01 AM
Surr: Decachlorobiphenyl	158	60-125	S	%REC	1	8/29/2011 5:28:01 AM
Surr: Tetrachloro-m-xylene	142	60-125	S	%REC	1	8/29/2011 5:28:01 AM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.4	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU32-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 1:42:23 PM
Surr: Decachlorobiphenyl	118	60-125		%REC	1	8/19/2011 1:42:23 PM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 1:42:23 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,800,000	190,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Arsenic	1,100	280		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Barium	11,000	4,700		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Beryllium	360	370	J	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Cadmium	130	190	J	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Calcium	760,000	190,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Chromium	6,200	1,900		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Cobalt	3,700	930		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Copper	7,800	930		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Iron	8,800,000	750,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Lead	7,100	190		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Magnesium	1,700,000	93,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Manganese	210,000	19,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Nickel	6,700	1,900		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Potassium	280,000	93,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Selenium	ND	930	U	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Sodium	37,000	93,000	J	µg/Kg-dry	20	9/8/2011 12:01:01 PM
Thallium	ND	370	U	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Vanadium	12,000	750		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Zinc	30,000	9,300		µg/Kg-dry	20	9/8/2011 10:25:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU32-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	88	240	J	µg/Kg-dry	10	9/8/2011 6:31:35 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:31:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	32	U	µg/Kg-dry	1	8/24/2011 2:36:06 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(a)anthracene	20	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(a)pyrene	20	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(b)fluoranthene	48	180	JmH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(k)fluoranthene	20	180	JmH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Chrysene	33	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Fluoranthene	49	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Phenanthrene	11	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Pyrene	55	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Surr: 2-Fluorobiphenyl	77.6	45-105	H	%REC	1	10/7/2011 5:10:00 PM
Surr: Nitrobenzene-d5	86.5	35-100	H	%REC	1	10/7/2011 5:10:00 PM
Surr: Terphenyl-d14	99.0	30-125	H	%REC	1	10/7/2011 5:10:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 8:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-019 **Matrix:** SOLVENT

Client Sample ID IOA-SO-TB01-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
1,1,1-Trichloroethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,1,2-Trichloroethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,1-Dichloroethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,1-Dichloroethene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,2,4-Trichlorobenzene	ND	2.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,2-Dibromo-3-chloropropane	ND	2.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,2-Dichlorobenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,2-Dichloroethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,2-Dichloropropane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,3-Dichlorobenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
1,4-Dichlorobenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
2-Hexanone	ND	5.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Acetone	6.6	5.0	B	µg/Kg	1	8/19/2011 7:08:00 PM
Benzene	ND	0.60	U	µg/Kg	1	8/19/2011 7:08:00 PM
Bromodichloromethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Bromoform	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Bromomethane	ND	4.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Carbon disulfide	ND	5.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Carbon tetrachloride	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Chlorobenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Chloroethane	ND	5.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Chloroform	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Chloromethane	ND	2.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
cis-1,2-Dichloroethene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
cis-1,3-Dichloropropene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Cyclohexane	ND	5.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Dibromochloromethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Dichlorodifluoromethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
EDB	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Ethylbenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Freon-113	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Isopropylbenzene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
m,p-Xylene	ND	2.0	U	µg/Kg	1	8/19/2011 7:08:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 8:00:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-019 **Matrix:** SOLVENT

Client Sample ID IOA-SO-TB01-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
MEK	2.2	10	J	µg/Kg	1	8/19/2011 7:08:00 PM
Methyl Acetate	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Methylcyclohexane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Methylene chloride	ND	2.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
MIBK	ND	5.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
o-Xylene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Styrene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Tetrachloroethene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Toluene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
trans-1,2-Dichloroethene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
trans-1,3-Dichloropropene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Trichloroethene	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Trichlorofluoromethane	ND	1.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Vinyl chloride	ND	0.80	U	µg/Kg	1	8/19/2011 7:08:00 PM
Xylenes, Total	ND	3.0	U	µg/Kg	1	8/19/2011 7:08:00 PM
Surr: 4-Bromofluorobenzene	98.4	90.5-116		%REC	1	8/19/2011 7:08:00 PM
Surr: Dibromofluoromethane	88.1	85-115		%REC	1	8/19/2011 7:08:00 PM
Surr: Toluene-d8	91.5	87.2-110		%REC	1	8/19/2011 7:08:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

APPENDIX C

REGIONAL WORKSHEETS

REGION I, EPA-NE ORGANIC REGIONAL DATA ASSESSMENT (ORDA)*

CASE #: 02073 SITE NAME: NAS South Weymouth

LAB NAME: RTI Lab # OF SAMPLES/MATRIX: _____

SDG #: 1108481 VALIDATION CONTRACTOR: TetraTech

SOW #/CONTRACT #: WE11 VALIDATOR'S NAME: JK

EPA-NE DV TIER LEVEL: II DATE DP REC'D BY EPA-NE: _____

TPO/PO: **ACTION ____ FYI ____ DV COMPLETION DATE: _____

ANALYTICAL DATA QUALITY SUMMARY

	VOA	SV	~~Pest~~/PCB
1. Preservation and Contractual Holding Times	See	DV	Report
2. GC/MS / GC/ECD Instrument Performance Check	↓	↓	↓
3. Initial Calibration			
4. Continuing Calibration			
5. Blanks			
6. Surrogate Compounds			
7. Internal Standards			
8. Matrix Spike/Matrix Spike Duplicate			
9. Sensitivity Check			
10. PE Samples-Accuracy Check			
11. Target Compound Identification			
12. Compound Quantitation and Reported QLs			
13. Tentatively Identified Compounds			
14. Semivolatile Cleanup/Pesticide/PCB Cleanup			
15. Data Completeness			
16. Overall Evaluation of Data			

o = Data had no problems or were qualified due to minor contractual problems.
m = Data were qualified due to major contractual problems.
z = Data were rejected as unusable due major contractual problems.

ACTION ITEMS: (z items)_____

AREAS OF CONCERN: (m items)_____

COMMENTS: _____

*This form assesses the analytical data quality in terms of contractual compliance only. It does not assess sampling errors and/or non-contractual analytical issues that affect data quality.

**Check "ACTION" only if contractual defects resulted in reduced payment/data rejection recommendations.

Validator: JKalinyak Date: 12/2/11

INSTRUCTIONS ON REVERSE SIDE

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name _____
Reference No. _____

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name RTI lab
Case/Project No. 02703
SDG No. 110848
No. of Samples/Matrix _____

SOW/Method No. 6/91
Sampling Date(s) _____
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. See DV Report

Trip Blank No. _____
Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____

PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

_____

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name J Kalmyak Company Name Tetratech Phone Number 412-921-7132

Date Validation Started _____ Date Validation Completed _____

EPA-NE
Data Validation Worksheet Cover Page - Page 2

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to analytical method. Note: there is no standard worksheet for System Performance, however, the validator must document all system performance issues in the Data Validation Memorandum.

VOA/SV worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	____
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	____
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	____
VOA/SV-III	INITIAL CALIBRATION	____
VOA/SV-IV	CONTINUING CALIBRATION	____
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	____
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	____
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	____
SV-VI	SV SURROGATE SPIKE RECOVERIES	____
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	____
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	____
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	____
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	____
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	____
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	____
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	____
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	____
VOA/SV-XV	SEMIVOLATILE CLEANUP	____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	____

Pest/PCB worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	____
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	____
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK-RESOLUTION	____
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK-RETENTION TIMES	____
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK-ACCURACY CHECK OF INITIAL CALIBRATION	____
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK-PESTICIDE DEGRADATION	____
Pest/PCB-III	INITIAL CALIBRATION	____
Pest/PCB-IV	CONTINUING CALIBRATION	____
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	____
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	____
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT	____
Pest/PCB-VII	PESTICIDE CLEANUP	____
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	____
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	____
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	____
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	____
Pest/PCB-XII	COMPOUND IDENTIFICATION	____
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	____

I certify that all criteria were met for the worksheets checked above.

Signature: _____ Name: J. Kaliszak

Date: 12/2/11

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
   a. Narrative
   b. Table I-Qualifier Recommendation Summary Table
   c. Table II-Overall Evaluation of Data
   d. Table III-Tentatively Identified Compounds
   e. Data Summary Tables
3. Standard Data Validation Worksheets
   a. Manual
   b. Automated Data Review Reports (i.e., CADRE)
4. Support Documentation
   a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
   b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
   c. Copies of Telephone Logs/Communication Forms for:
      - RSCC communications
      - Requests for laboratory data resubmissions/clarifications
      - Communications with samplers resolving sampling problems
      - Communications with TPO/Lead Chemist to report contractually-deficient data for rejection/reduced payment
      - Communications with EPA Site Manager concerning possible data rejection
      - EPA Site Manager authorization for alternate DV tier
   d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
   e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
   f. Copies of field sampling notes and/or field report supplied by field sampler
   g. Copies of EPA-approved amendments to QAPjP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

See DV Report

VOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
Overall Evaluation of Data - Data Validation Memorandum - Table II

See DV Report

SEMIVOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: _____

Missing Information	Date Lab Contacted	Date Received
See DV Report		

Validator: _____ Date: 12/2/11

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

See DV Report

12/96

Sampler:_____ Company:_____ Contacted: Yes No Date:_____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: _____ Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV-II

See DV Report

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments:							

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
Comments:							

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV-III

See DV Report

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	$\overline{RRF}$	Samples Affected	Action

Comments:

Validator: _____

Date: 12/2/11

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

See DV Report

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action

Comments:

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet

VOA/SV - Pest/PCB-V-A

See DV Report

V. BLANK ANALYSIS

List the blank contamination below.

Concentration Level:_____

Sampler: _____ Company: _____

Contacted: Yes No Date:_____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

Validator: _____ Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

See DV Report

3. Blank Actions - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action

Comments: _____

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA-VI

See DV Report

VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Volatile Method QC Acceptance Criteria				
	Toluene-d_8	BFB	DCE-d_4	Other:	
OLM03.2	Water 88-110 Soil 84-138	Water 86-115 Soil 59-113	Water 76-114 Soil 70-121		
OLC02.1	NA	80-120	NA		
Other:					
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
SV-VI

See DV Report

VI. SV SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**% Recovery**	**Action**

* Advisory Surrogates - OLM03.2

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV-VII

See DV Report

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria
IS Area Count method QC acceptance criteria:_____
IS Retention Time method QC acceptance criteria:_____

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	__IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action

Validator:_____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

See QV Report

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # _____ Matrix _____ Concentration Level _____

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

See DV Report

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: _____ Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-X

See DV Report

X. SENSITIVITY CHECK (Method Detection Limit Study)

List all compounds, surrogates, and internal standards that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each compound and matrix of interest? **Y N**
- Date of Preparation/Analysis: _____ Within 1 year? **Y N**
- Instrument I.D.: _____ Same as samples? **Y N**
- Column I.D.: _____ Same as samples? **Y N**

Matrix	Compound	MDL > QL	Method QC Limits < 80% or > 120%	IS Outside Area Count and/or RT Criteria	RSD > 20%	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

(Laboratory Fortified Blank) - List all LFB compounds, surrogates and internal standards that are outside criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? **Y N**
- Does it contain all target compounds at the method-required QLs? **Y N**
- Was the LFB spiked with a standard from a source (vendor) independent of the calibration standard? **Y N**

Matrix	Compound	Method QC Limits < 60% or > 140% Other:	IS Outside Area Count and/or RT Criteria	Samples Affected	Action

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XI

See DV Report

XI. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

SDG No: _____ CASE: _____

Are more than one-half of the PES analytes within criteria for each parameter. **Y N**

PE Sample Number	Ampule Number	Parameter	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HIT; TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the Non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Validator: _____ Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

See DV Report

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	___MS Ions	____RRT	Action

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XIII

See DV Report

XIII. SAMPLE QUANTITATION

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? Y N
If no, list sample numbers_____

Fraction		Calculation
VOA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
BNA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
Pesticide/PCB		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV-XIV

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

N/A

List the 5 TICs having the highest concentration for each sample parameter.

Sample Number	Parameter	Compound	____RRT	__Est. Conc.	Action

Validator: _____

Date: 12/2/11

EPA-NE - Data Validation Worksheet
VOA/SV-XV

See DV Report

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments: _____

Validator: _____ Date: 12/2/11

APPENDIX D

SUPPORT DOCUMENTATION

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	PMOIS	%	IOA-SO-RIA33-SB04-0305	1108481-013B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-DUP04-081111	1108481-005C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA33-SB10-0305	1108481-016B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SO-RIA82-04A-0608	1108481-011B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-03A-0608	1108481-010B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-02A-0608	1108481-009B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-01A-0608	1108481-008B	NM	08/09/2011	01/01/1999	08/26/2011	-4603	4620	17
1108481	PMOIS	%	IOA-SO-RIA33-SB14-0507	1108481-017B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-EU19-0002	1108481-004C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-DUP05-081511	1108481-015B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	OV	%	IOA-SO-RIA33-SB14-0507	1108481-017C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-TB01-081511	1108481-019A	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB02-0507	1108481-018C	NM	08/15/2011	01/01/1999	08/29/2011	-4609	4623	14
1108481	OV	%	IOA-SO-RIA33-SB08-0305	1108481-014C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB04-0305	1108481-013C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB10-0305	1108481-016C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-DUP05-081511	1108481-015C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-RIA33-SB10-0305	1108481-016C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-TB01-081511	1108481-019A	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	OV	UG/KG	IOA-SO-RIA33-SB04-0305	1108481-013C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-RIA33-SB14-0507	1108481-017C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-DUP05-081511	1108481-015C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-RIA33-SB02-0507	1108481-018C	NM	08/15/2011	01/01/1999	08/29/2011	-4609	4623	14
1108481	OV	UG/KG	IOA-SO-RIA33-SB08-0305	1108481-014C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	SIM	%	IOA-SO-RIA33-SB10-0305	1108481-016A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	%	IOA-SS-EU19-0002	1108481-004A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SS-EU12-0002	1108481-007A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SO-RIA82-03A-0608	1108481-010A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SS-DUP04-081111	1108481-005A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SO-RIA82-02A-0608	1108481-009A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SO-RIA82-04A-0608	1108481-011A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SO-RIA33-SB08-0305	1108481-014A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	%	IOA-SS-EU32-0002	1108481-003A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	%	IOA-SO-RIA82-01A-0608	1108481-008A	NM	08/09/2011	08/16/2011	10/07/2011	7	52	59
1108481	SIM	%	IOA-SO-DUP05-081511	1108481-015A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	%	IOA-SO-RIA33-SB04-0305	1108481-013A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	%	IOA-SO-RIA33-SB02-0507	1108481-018A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	%	IOA-SO-RIA33-SB14-0507	1108481-017A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	SIM	UG/KG	IOA-SO-RIA82-02A-0608	1108481-009A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SO-RIA82-04A-0608	1108481-011A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SO-RIA82-03A-0608	1108481-010A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SS-DUP04-081111	1108481-005A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SO-RIA82-01A-0608	1108481-008A	NM	08/09/2011	08/16/2011	10/07/2011	7	52	59
1108481	SIM	UG/KG	IOA-SO-DUP05-081511	1108481-015A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SO-RIA33-SB14-0507	1108481-017A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SO-RIA33-SB02-0507	1108481-018A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SO-RIA33-SB10-0305	1108481-016A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SS-EU19-0002	1108481-004A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SS-EU32-0002	1108481-003A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	SIM	UG/KG	IOA-SO-RIA33-SB04-0305	1108481-013A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SO-RIA33-SB08-0305	1108481-014A	NM	08/15/2011	08/16/2011	10/07/2011	1	52	53
1108481	SIM	UG/KG	IOA-SS-EU12-0002	1108481-007A	NM	08/11/2011	08/16/2011	10/07/2011	5	52	57
1108481	PCB	%	IOA-SS-DUP04-081111	1108481-005b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	%	IOA-SS-EU12-0002	1108481-007b	NM	08/11/2011	08/18/2011	08/29/2011	7	11	18
1108481	PCB	%	IOA-SS-EU19-0002	1108481-004b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	%	IOA-SS-EU22-0002	1108481-006a	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	%	IOA-SS-EU22-0002	1108481-012a	NM	08/15/2011	08/18/2011	08/29/2011	3	11	14

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	PCB	%	IOA-SS-EU32-0002	1108481-003b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	%	IOA-SS-EU21-0002	1108481-001a	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	UG/KG	IOA-SS-EU32-0002	1108481-003b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	UG/KG	IOA-SS-EU22-0002	1108481-012a	NM	08/15/2011	08/18/2011	08/29/2011	3	11	14
1108481	PCB	UG/KG	IOA-SS-EU22-0002	1108481-006a	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	UG/KG	IOA-SS-EU21-0002	1108481-001a	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	UG/KG	IOA-SS-EU19-0002	1108481-004b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8
1108481	PCB	UG/KG	IOA-SS-EU12-0002	1108481-007b	NM	08/11/2011	08/18/2011	08/29/2011	7	11	18
1108481	PCB	UG/KG	IOA-SS-DUP04-081111	1108481-005b	NM	08/11/2011	08/17/2011	08/19/2011	6	2	8

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 2

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

1108482

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS

PROJECT NAME: Industrial Operations Area CTO WE11 | PROJECT #: 112607073 Crowell | QUOTE #:

SAMPLING LOCATION (STATE or COUNTRY): MA

SPECIAL INSTRUCTIONS / COMMENTS:

REPORT TO: Phoebe Call
COMPANY: Tetra Tech
ADDRESS: 250 Andover St Suite 200
CITY, STATE, ZIP: Wilmington, MA 0887
PHONE: 978-474-8400
EMAIL (OR FAX IF NO EMAIL AVAILABLE): PhoebeCall@tetratech.com

BILL TO: P.O.#
COMPANY: Labspec
ADDRESS:
CITY, STATE, ZIP

SAMPLER'S PRINTED NAME: Johanna Traut
SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED	TIME	MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	PCBs	Metals	pH Acceptable? Y N N/A	COMMENTS
1	IOA-SS-EU21-0002	8/11/11	0810	S	3	3							1	1	1		N/A
2	IOA-SS-EU20-0002	8/11/11	0820	S	1	1							1	1	1		N/A Broken in transit 8/12/11
3	IOA-SS-EU32-0002	8/11/11	0825	S	3	3							1	1	1		N/A
4	IOA-SS-EU19-0002	8/11/11	0845	S	3	3							1	1	1		N/A
5	IOA-SS-DUP04-081111	8/11/11	0000	S	3	3							1	1	1		N/A
6	IOA-SS-EU22-0002	8/11/11	0855	S	1	1							1	1	1		N/A
7	IOA-SS-EU12-0002	8/11/11	0905	S	3	3							1	1	1		N/A
8	IOA-SO-RIA82-01A-0608	8/9/11	1525	S	2	2							1	1	1		N/A
9	IOA-SO-RIA82-02A-0608	8/11/11	0935	S	2	2							1	1	1		N/A
10	IOA-SO-RIA82-03A-0608	8/11/11	0955	S	2	2							1	1	1		N/A

	Date	Time		Date	Time
Relinquished By: Johanna Traut	8/11/11	1500	Received By: FedEx		
Relinquished By: FedEx	8/12/11	1000	Received By: Christine Conrady	8/12/11	1000
Relinquished By:			Received By:		

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples: 2.4-7.8 On Wet Ice ? Y

Comments: Cooler A-511 Temp Blank 1.4°C Fedex: 8651 7613 3983

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

See reverse side for Laboratory Terms and Conditions of Service

Distribution: White - Lab; Pink - Field

MATRIX CODES: A = AIR; SD = SOLID; DW = DRINKING WATER; SL = SLUDGE; GW = GROUNDWATER; SV = SOLVENT WASTE; L = LIQUID; W = WATER; O = OIL; WP = WIPE; WW = WASTE WATER; SW = SURFACE WATER; S = SOIL

CHAIN OF CUSTODY RECORD

RTI LABORATORIES, INC.
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

1108482

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS	REPORT TO: Phoebe Call
PROJECT NAME: Industrial operations PROJECT #: 112602073 CTOWE11	COMPANY: TetraTech
QUOTE #:	ADDRESS: 250 Andover St Suite 200
SAMPLING LOCATION (STATE or COUNTRY): MA	CITY, STATE, ZIP: Wilmington, MA 01887
SPECIAL INSTRUCTIONS / COMMENTS:	PHONE: 978 474-5400
SAMPLER'S PRINTED NAME: Johanna Traut (774) 722-0409	SAMPLER'S SIGNATURE: Johanna Traut

BILL TO: P.O. #
COMPANY: sc lab spec
ADDRESS:
CITY, STATE, ZIP
EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.Call@tetratech.com

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	Metals	pH Acceptable? Y N N/A	COMMENTS (Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.)
1	IOA-SO-RIA82-04A-0608	8/11/11	1035	S	2	2							1	1	NA	
2																
3																
4																
5																
6																
7																
8																
9																
10																

ST 8-11-11

Relinquished By: Johanna Traut	Date: 8-11-11	Time: 1500	Received By: FedEx	Date	Time
Relinquished By: FedEx	Date: 8/15/11	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY
Temp of samples 24-7.8 On Wet Ice ? Y
Comments:

TURNAROUND DESIRED: Standard ☒ RUSH: Next BD ☐ 2nd BD ☐ 3rd BD ☐
Note: RUSH requests will incur surcharges!

See reverse side for Laboratory Terms and Conditions of Service

Distribution: White - Lab; Pink - Field

MATRIX CODES: A = AIR; SD = SOLID; DW = DRINKING WATER; SL = SLUDGE; GW = GROUNDWATER; SV = SOLVENT WASTE; L = LIQUID; W = WATER; O = OIL; WP = WIPE; WW = WASTE WATER; SW = SURFACE WATER; S = SOIL

RTI LABORATORIES, INC.

1108481

A2LA Cert #570.01/02 | nelac NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

Phone (734) 422-5342
Fax (734) 422-5342
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NVS
PROJECT NAME: Industrial Operations Area
PROJECT #: 112602073 | CTOWE11
QUOTE #:
SAMPLING LOCATION (STATE or COUNTRY): MA
SPECIAL INSTRUCTIONS / COMMENTS:

REPORT TO: Phoebe Call
COMPANY: TetraTech
ADDRESS: 250 Andover St, Suite 200
CITY, STATE, ZIP: Wilmington, MA 01887
PHONE: 978-474-8400
EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.call@Tetratech.com

BILL TO:
P.O. #
COMPANY: see lab spec
ADDRESS:
CITY, STATE, ZIP

SAMPLER'S PRINTED NAME: Johanna Traut
SAMPLER'S SIGNATURE: Jhanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	VOCs	PAHs	PCBs	Metals	pH Acceptable? Y N N/A	COMMENTS Methanol Preserved Weights HOT Sample Notation Additional Sample Description Air Volume, etc.
12	IOA-SS-EU20-0002	8/15/11	1525	S	1	1							1	1	1	1	N/A	
13	IOA-SO-RIA33-SB04-0305	8/15/11	1310	S	4	2						2	2	1	1	1	N/A	
14	IOA-SO-RIA33-SB08-0305	8/15/11	1320	S	4	2						2	2	1	1	1	N/A	
15	IOA-SO-DUP05-081511	8/15/11	0000	S	4	2						2	2	1	1	1	N/A	Lab QC
16	IOA-SO-RIA33-SB10-0305	8/15/11	1340	S	11	5						6	6	3	2	2	N/A	
17	IOA-SO-RIA33-SB14-0507	8/15/11	1400	S	4	2						2	2	1	1	1	N/A	
18	IOA-SO-RIA33-SB02-0507	8/15/11	1425	S	4	2						2	2	1	1	1	N/A	
19	IOA-SO-TB01-081511	8/15/11	0800	QC	2							2	2	-	-	-		
9	Jhanna Traut 8-15-11																	
10																		

Relinquished By:	Date	Time	Received By:	Date	Time
Jhanna Traut	8/15/11	1700	to FedEx		
Fedex	8/16/11	09:45	Christine Conradis	8/16/11	09:45

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY
Temp of samples 10.4-19.2 On Wet Ice? Y
Comments: Codex Analytics Lab

TURNAROUND DESIRED: Standard ☒
RUSH: Next BD ☐ 2nd BD ☐ 3rd BD ☐
Note: RUSH requests will incur surcharges!

See reverse side for Laboratory Terms and Conditions of Service

Distribution: White - Lab; Pink - Field

MATRIX CODES: A = AIR, SD = SOLID, DW = DRINKING WATER, SL = SLUDGE, GW = GROUNDWATER, SV = SOLVENT WASTE, L = LIQUID, W = WATER, O = OIL, WP = WIPE, WW = WASTE WATER, SW = SURFACE WATER, S = SOIL

Temp Blank: 1.4°C

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Sample Receipt Checklist

Client Name: **TET15** Date and Time Received: **8/12/2011 10:00:00 AM**

Work Order Number **1108481** RcptNo: **1** Received by: **Christine Conradis**

Completed by: Reviewed by:

Completed Date: 8/12/2011 11:47:00 AM Reviewed Date: 8/12/2011 5:03:51 PM

Carrier name: FedEx

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	Not Present ☐
Are matrices correctly identified on Chain of custody?	Yes ☑	No ☐	
Is it clear what analyses were requested?	Yes ☑	No ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Samples in proper container/bottle?	Yes ☑	No ☐	
Were correct preservatives used and noted?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Were container labels complete (ID, Pres, Date)?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Was an attempt made to cool the samples?	Yes ☑	No ☐	
All samples received at a temp. of > 0° C to 6.0° C?	Yes ☐	No ☑	
Response when temperature is outside of range:	on ice		
Preservative added to bottles:			
Sample Temp. taken and recorded upon receipt?	Yes ☑	No ☐	2.4 To 7.8 °C
Water - Were bubbles absent in VOC vials?	Yes ☐	No ☐	No Vials ☑
Water - Was there Chlorine Present?	Yes ☐	No ☐	NA ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	No Water ☑
Are Samples considered acceptable?	Yes ☑	No ☐	
Custody Seals present?	Yes ☑	No ☐	
Traffic Report or Packing Lists present?	Yes ☐	No ☑	
Airbill or Sticker?	Air Bill ☑	Sticker ☐	Not Present ☐
Airbill No:	865176133983		
Sample Tags Present?	Yes ☐	No ☑	
Sample Tags Listed on COC?	Yes ☐	No ☑	
Tag Numbers:			
Sample Condition?	Intact ☑	Broken ☐	Leaking ☐

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

SampID	ContainerID	Type	Org pH	Adj pH	Req Min pH	Req Max pH
1108481-001A	Container-01 of 01	Bottle				
1108481-003A	Container-01 of 01	Bottle				
1108481-003B	Container-01 of 01	Bottle				
1108481-003C	Container-01 of 01	Bottle				
1108481-004A	Container-01 of 01	Bottle				
1108481-004B	Container-01 of 01	Bottle				
1108481-004C	Container-01 of 01	Bottle				
1108481-005A	Container-01 of 01	Bottle				
1108481-005B	Container-01 of 01	Bottle				
1108481-005C	Container-01 of 01	Bottle				
1108481-006A	Container-01 of 01	Bottle				
1108481-007A	Container-01 of 01	Bottle				
1108481-007B	Container-01 of 01	Bottle				
1108481-007C	Container-01 of 01	Bottle				
1108481-008A	Container-01 of 01	Bottle				
1108481-008B	Container-01 of 01	Bottle				
1108481-009A	Container-01 of 01	Bottle				
1108481-009B	Container-01 of 01	Bottle				
1108481-010A	Container-01 of 01	Bottle				
1108481-010B	Container-01 of 01	Bottle				
1108481-011A	Container-01 of 01	Bottle				
1108481-011B	Container-01 of 01	Bottle				
1108481-012A	Container-01 of 01	Bottle				
1108481-013A	Container-01 of 01	Bottle				
1108481-013B	Container-01 of 01	Bottle				
1108481-013C	Container-01 of 02	Bottle				
1108481-013C	Container-02 of 02	Bottle				
1108481-014A	Container-01 of 01	Bottle				
1108481-014B	Container-01 of 01	Bottle				
1108481-014C	Container-01 of 02	Bottle				
1108481-014C	Container-02 of 02	Bottle				
1108481-015A	Container-01 of 01	Bottle				
1108481-015B	Container-01 of 01	Bottle				
1108481-015C	Container-01 of 02	Bottle				

SampID	ContainerID	Type	Org pH	Adj pH	Req Min pH	Req Max pH
1108481-015C	Container-02 of 02	Bottle				
1108481-016A	Container-01 of 03	Bottle				
1108481-016A	Container-02 of 03	Bottle				
1108481-016A	Container-03 of 03	Bottle				
1108481-016B	Container-01 of 02	Bottle				
1108481-016B	Container-02 of 02	Bottle				
1108481-016C	Container-01 of 06	Bottle				
1108481-016C	Container-02 of 06	Bottle				
1108481-016C	Container-03 of 06	Bottle				
1108481-016C	Container-04 of 06	Bottle				
1108481-016C	Container-05 of 06	Bottle				
1108481-016C	Container-06 of 06	Bottle				
1108481-017A	Container-01 of 01	Bottle				
1108481-017B	Container-01 of 01	Bottle				
1108481-017C	Container-01 of 02	Bottle				
1108481-017C	Container-02 of 02	Bottle				
1108481-018A	Container-01 of 01	Bottle				
1108481-018B	Container-01 of 01	Bottle				
1108481-018C	Container-01 of 02	Bottle				
1108481-018C	Container-02 of 02	Bottle				
1108481-019A	Container-01 of 02	Bottle				
1108481-019A	Container-02 of 02	Bottle				

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
A-511	1.4-7.8	Good	Yes		8/10/2011	Johanna Traut

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client Contacted? ☑ Yes ☐ No ☐ NA Person Contacted: Phoebe Call

Contact Mode: ☐ Phone: ☐ Fax: ☑ Email: ☐ In Person:

Comments: Sample #2 broken in transit.

Client Instructions:

Date Contacted: 8/12/2011 Contacted By: Katherine Jones

Regarding: Sample # 3 broke in transit, unable to perform

CorrectiveAction:

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108481
15-Nov-11

CLIENT: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108481-001	IOA-SS-EU21-0002		8/11/2011 8:10:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-002	IOA-SS-EU20-0002		8/11/2011 8:20:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-003	IOA-SS-EU32-0002		8/11/2011 8:25:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-003	IOA-SS-EU32-0002		8/11/2011 8:25:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-003	IOA-SS-EU32-0002		8/11/2011 8:25:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-004	IOA-SS-EU19-0002		8/11/2011 8:45:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-004	IOA-SS-EU19-0002		8/11/2011 8:45:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-004	IOA-SS-EU19-0002		8/11/2011 8:45:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-005	IOA-SS-DUP04-081111		8/11/2011	8/12/2011 10:00:00 AM	Soil
1108481-005	IOA-SS-DUP04-081111		8/11/2011	8/12/2011 10:00:00 AM	Soil
1108481-005	IOA-SS-DUP04-081111		8/11/2011	8/12/2011 10:00:00 AM	Soil
1108481-006	IOA-SS-EU22-0002		8/11/2011 8:55:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-007	IOA-SS-EU12-0002		8/11/2011 9:05:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-007	IOA-SS-EU12-0002		8/11/2011 9:05:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-007	IOA-SS-EU12-0002		8/11/2011 9:05:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-008	IOA-SO-RIA82-01A-0608		8/9/2011 3:25:00 PM	8/12/2011 10:00:00 AM	Soil
1108481-008	IOA-SO-RIA82-01A-0608		8/9/2011 3:25:00 PM	8/12/2011 10:00:00 AM	Soil
1108481-009	IOA-SO-RIA82-02A-0608		8/11/2011 9:35:00 AM	8/12/2011 10:00:00 AM	Soil
1108481-009	IOA-SO-RIA82-02A-0608		8/11/2011 9:35:00 AM	8/12/2011 9:35:00 AM	Soil
1108481-010	IOA-SO-RIA82-03A-0608		8/11/2011 9:55:00 AM	8/12/2011 9:55:00 AM	Soil
1108481-010	IOA-SO-RIA82-03A-0608		8/11/2011 9:55:00 AM	8/12/2011 9:55:00 AM	Soil
1108481-011	IOA-SO-RIA82-04A-0608		8/11/2011 10:35:00 AM	8/12/2011 9:55:00 AM	Soil
1108481-011	IOA-SO-RIA82-04A-0608		8/11/2011 10:35:00 AM	8/12/2011 9:55:00 AM	Soil
1108481-012	IOA-SS-EU22-0002		8/15/2011 3:25:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-013	IOA-SO-RIA33-SB04-0305		8/15/2011 1:10:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-013	IOA-SO-RIA33-SB04-0305		8/15/2011 1:10:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-013	IOA-SO-RIA33-SB04-0305		8/15/2011 1:10:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-014	IOA-SO-RIA33-SB08-0305		8/15/2011 1:20:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-014	IOA-SO-RIA33-SB08-0305		8/15/2011 1:20:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-014	IOA-SO-RIA33-SB08-0305		8/15/2011 1:20:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-015	IOA-SO-DUP05-081511		8/15/2011	8/16/2011 9:45:00 AM	Soil
1108481-015	IOA-SO-DUP05-081511		8/15/2011	8/16/2011 9:45:00 AM	Soil
1108481-015	IOA-SO-DUP05-081511		8/15/2011	8/16/2011 9:45:00 AM	Soil
1108481-016	IOA-SO-RIA33-SB10-0305		8/15/2011 1:40:00 PM	8/16/2011 9:45:00 AM	Soil

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Workorder Sample Summary

WO#: 1108481

15-Nov-11

CLIENT: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1108481-016	IOA-SO-RIA33-SB10-0305		8/15/2011 1:40:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-016	IOA-SO-RIA33-SB10-0305		8/15/2011 1:40:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-017	IOA-SO-RIA33-SB14-0507		8/15/2011 2:00:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-017	IOA-SO-RIA33-SB14-0507		8/15/2011 2:00:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-017	IOA-SO-RIA33-SB14-0507		8/15/2011 2:00:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-018	IOA-SO-RIA33-SB02-0507		8/15/2011 2:25:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-018	IOA-SO-RIA33-SB02-0507		8/15/2011 2:25:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-018	IOA-SO-RIA33-SB02-0507		8/15/2011 2:25:00 PM	8/16/2011 9:45:00 AM	Soil
1108481-019	IOA-SO-TB01-081511		8/15/2011 8:00:00 AM	8/16/2011 9:45:00 AM	Solvent

RTI LABORATORIES, INC.

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DATES REPORT

WO#: 1108481

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-001A	IOA-SS-EU21-0002	8/11/2011 8:10:00 AM	Soil	PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Polychlorinated Biphenyls		8/17/2011 10:59:32 AM	8/19/2011 1:18:14 PM
1108481-003A	IOA-SS-EU32-0002	8/11/2011 8:25:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 5:10:00 PM
1108481-003B				Polychlorinated Biphenyls		8/17/2011 10:59:32 AM	8/19/2011 1:42:23 PM
1108481-003C				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:36:06 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:25:13 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:01:01 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 1:53:51 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:31:35 PM
1108481-004A	IOA-SS-EU19-0002	8/11/2011 8:45:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 5:33:00 PM
1108481-004B				Polychlorinated Biphenyls		8/17/2011 10:59:32 AM	8/19/2011 2:06:36 PM
1108481-004C				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:37:33 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 1:54:41 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:01:51 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:26:50 AM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:32:22 PM
1108481-005A	IOA-SS-DUP04-081111	8/11/2011		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 5:56:00 PM
1108481-005B				Polychlorinated Biphenyls		8/17/2011 10:59:32 AM	8/19/2011 2:30:44 PM
1108481-005C				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:39:00 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 1:55:31 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:28:26 AM

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

DATES REPORT

WO#: 1108481

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-005C	IOA-SS-DUP04-081111	8/11/2011	Soil	Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:02:41 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:33:09 PM
1108481-006A	IOA-SS-EU22-0002	8/11/2011 8:55:00 AM		PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Polychlorinated Biphenyls		8/17/2011 10:59:32 AM	8/19/2011 2:54:59 PM
1108481-007A	IOA-SS-EU12-0002	8/11/2011 9:05:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 6:20:00 PM
1108481-007B				Polychlorinated Biphenyls		8/18/2011 8:25:01 AM	8/29/2011 5:03:51 AM
1108481-007C				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:40:27 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 1:56:21 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:30:03 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:03:32 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:33:56 PM
1108481-008A	IOA-SO-RIA82-01A-0608	8/9/2011 3:25:00 PM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 6:43:00 PM
1108481-008B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:41:54 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:38:33 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:02:01 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:22:58 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:34:44 PM
1108481-009A	IOA-SO-RIA82-02A-0608	8/11/2011 9:35:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 7:06:00 PM
1108481-009B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:46:24 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:40:10 AM

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

DATES REPORT

WO#: 1108481

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-009B	IOA-SO-RIA82-02A-0608	8/11/2011 9:35:00 AM	Soil	Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:23:49 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:02:51 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:40:09 PM
1108481-010A	IOA-SO-RIA82-03A-0608	8/11/2011 9:55:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 7:30:00 PM
1108481-010B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:47:52 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:41:47 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:24:40 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:03:42 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:40:57 PM
1108481-011A	IOA-SO-RIA82-04A-0608	8/11/2011 10:35:00 AM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 7:53:00 PM
1108481-011B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:49:20 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:43:22 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:25:29 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:04:31 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:41:43 PM
1108481-012A	IOA-SS-EU22-0002	8/15/2011 3:25:00 PM		PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Polychlorinated Biphenyls		8/18/2011 8:25:01 AM	8/29/2011 5:28:01 AM
1108481-013A	IOA-SO-RIA33-SB04-0305	8/15/2011 1:10:00 PM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 6:11:00 PM
1108481-013B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:50:49 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:05:21 PM

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

DATES REPORT

WO#: 1108481

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-013B	IOA-SO-RIA33-SB04-0305	8/15/2011 1:10:00 PM	Soil	Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:26:18 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:44:58 AM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:42:29 PM
				Volatile Organic Compounds			8/19/2011 9:51:00 PM
1108481-013C				Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 6:35:00 PM
1108481-014A	IOA-SO-RIA33-SB08-0305	8/15/2011 1:20:00 PM		Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:52:18 PM
1108481-014B				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:46:34 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:06:10 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:27:08 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:43:15 PM
				Volatile Organic Compounds			8/19/2011 10:18:00 PM
1108481-014C				Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 6:58:00 PM
1108481-015A	IOA-SO-DUP05-081511	8/15/2011		Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:56:36 PM
1108481-015B				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:48:10 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:27:58 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:07:00 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:44:02 PM
				Volatile Organic Compounds			8/19/2011 10:44:00 PM
1108481-015C				Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 7:22:00 PM
1108481-016A	IOA-SO-RIA33-SB10-0305	8/15/2011 1:40:00 PM					

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

DATES REPORT

WO#: 1108481

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-016B	IOA-SO-RIA33-SB10-0305	8/15/2011 1:40:00 PM	Soil	Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:31:48 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 1:40:19 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:23:37 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 11:59:53 AM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:30:48 PM
1108481-016C				Volatile Organic Compounds			8/19/2011 7:36:00 PM
1108481-017A	IOA-SO-RIA33-SB14-0507	8/15/2011 2:00:00 PM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 7:46:00 PM
1108481-017B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:58:09 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:49:46 AM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:28:47 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:07:50 PM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:44:48 PM
1108481-017C				Volatile Organic Compounds			8/19/2011 11:11:00 PM
1108481-018A	IOA-SO-RIA33-SB02-0507	8/15/2011 2:25:00 PM		Semi-Volatile Organic Compounds		8/16/2011 11:15:22 AM	10/7/2011 8:09:00 PM
1108481-018B				Mercury		8/24/2011 7:44:53 AM	8/24/2011 2:59:36 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 12:29:37 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 2:08:40 PM
				Metals, ICP/MS		8/23/2011 1:36:56 PM	9/8/2011 10:53:45 AM
				PERCENT MOISTURE			8/26/2011 10:15:00 AM
				Silver and Antimony, ICP/MS		8/23/2011 1:37:59 PM	9/8/2011 6:45:35 PM

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

DATES REPORT

WO#: **1108481**

15-Nov-11

Client: Tetra Tech NUS, Inc.

Project: Industrial Operations Area-CTO WE11/112G02073

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1108481-018C	IOA-SO-RIA33-SB02-0507	8/15/2011 2:25:00 PM	Soil	Volatile Organic Compounds			8/29/2011 9:05:00 PM
1108481-019A	IOA-SO-TB01-081511	8/15/2011 8:00:00 AM	Solvent	Volatile Organic Compounds			8/19/2011 7:08:00 PM

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.

Project: 112G02073

CASE NARRATIVE

Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/12/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 18 soil samples and 1 solvent sample.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Volatile Organic Compounds – EPA Methods 5035/8260B
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample 1108481-002 (IOA SS-EU20-0002) was broken in transit

Sample extracts for PAH analyses were analyzed beyond the holding time.

Sample 1108481-018 required re-analysis due to low internal standard responses. Analysis was performed <1 day beyond the holding time,

QUALITY CONTROL:

Volatile Organic Compounds Analyses:

All sample analyses included a Method Blank, LCS and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC forms or below. Initial and continuing calibration results were within method specifications. MS tuning parameters were within the acceptable ranges for the method.

Continuing calibration verification standard (CCV), 082911: Results for 4-Methyl-2-pentanone and Acetone exceeded the 20% criteria.

Analytical Comments for METHOD SW_8260S, SAMPLE 1108481-016C, Batch ID R42436: Internal Standard/Surrogate failures likely due to cracked cap in sample. Likely occurred when instrument pressurized vial. Could not reanalyze due to previous analysis of other vials provided.

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

CASE NARRATIVE

Surrogate recoveries were within control limits except as noted below:

Sample ID	Dibromofluoromethane	Toluene-d8
1108481-016	83.3%	73.7%
LCS 081911A	83.8%	
BLK 081911A	82.0%	

Analytical Sequence ID 42436:

- Method blank: VOA8 BLK 081911A – Results for the following compounds were greater than ½ the LOQ.
  1,2,3-Trichlorobenzene: Result – 0.51, ½ LOQ – 0.5
  Acetone: Result – 5.8, ½ LOQ – 2.5
  Toluene: Result – 0.79, ½ LOQ – 0.5
- Sample IDs 1108481-016CMS/MSD recoveries exceeded control limits for several analytes. Could not reanalyze due to previous analysis of other vials provided. No sample left for reanalysis.

Analytical Sequence ID 42719:

- LCS 082911 recovery exceeded control limits for Methylene chloride (39.6%),

All manual integrations were performed to adequately resolve co-eluting compounds, interference and instrument data system inconsistencies and were consistent with laboratory policies and procedures for manual integration. Before and after screen shots of the integrations are enclosed in this data package. Rationale for manual integration is included and follows the raw data.

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications. MS tuning parameters were within the acceptable ranges for the method.

Surrogate recoveries were within control limits.

All manual integrations were performed to adequately resolve co-eluting compounds, interference and instrument data system inconsistencies and were consistent with laboratory policies and procedures for manual integration. Before and after screen shots of the integrations are enclosed in this data package. Rationale for manual integration is included and follows the raw data.

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073 **CASE NARRATIVE**
Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits except as noted below:

Sample ID	Decachlorobiphenyl	Tetrachloro-m-xylene
1108481-007	136%	
1108481-012	158%	142%

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

Batch ID 23333:

- Sample ID 1108481-016BMS/MSD recoveries and RPD results for Aluminum, Calcium, Iron, Manganese, Magnesium and Potassium were affected by elevated concentrations in the sample.

Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: Charles O'Bryan
Charles O'Bryan, Director, Quality Management

Date: 11/18/2011

VOC

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Client ID: TET15 SASno: _____ SDG No. 1108481

Lab File ID: 08191101.D BFB Injection Date: 8/19/2011

Instrument ID: VOA8 BFB Injection Time: 12:03

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15-40% of mass 95	18.0
75	30-60% of mass 95	38.0
95	Base Peak, 100% relative abundance	100.0
96	5-9% of mass 95	5.8
173	<2% of mass 174	0.0
174	>50% of mass 95	77.0
175	5-9% of mass 174	7.7
176	95-101% of mass 174	98.0
177	5-9% of mass 176	6.0

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	1ug/kg ICAL .1uL	1ug/kg ICAL .1uL	08191103.D	08/19/11	13:13
02	5ug/kg ICAL .5uL	5ug/kg ICAL .5uL	08191104.D	08/19/11	13:40
03	10ug/kg ICAL 1uL	10ug/kg ICAL 1uL	08191105.D	08/19/11	14:08
04	25ug/kg ICAL 2.5	25ug/kg ICAL 2.5	08191106.D	08/19/11	14:34
05	50ug/kg ICAL 5uL	50ug/kg ICAL 5uL	08191107.D	08/19/11	15:01
06	100ug/kg ICAL 10	100ug/kg ICAL 10	08191108.D	08/19/11	15:28
07	200ug/kg ICAL 20	200ug/kg ICAL 20	08191109.D	08/19/11	15:55

Response Factor Report VOA 8

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Initial Calibration

Calibration Files
1 =08191103.D 5 =08191104.D 10 =08191105.D
25 =08191106.D 50 =08191107.D 100 =08191108.D

		Compound	1	5	10	25	50	100	Avg	%RSD	
1)	I	Pentafluorobenzene	----------	ISTD	----------						
2)	M	Dichlorodifluoromet	1.293	1.255	1.361	1.292	1.257	1.219	1.279	3.78	
3)	M,P	Chloromethane	2.169	2.196	2.294	2.115	2.081	1.989	2.141	4.88	
4)	M,C	Vinyl chloride	1.589	1.615	1.633	1.549	1.537	1.481	1.548	4.74	
5)	M	Bromomethane	1.405	1.153	1.070	0.860	0.756		1.049	24.28	→ L
6)	M	Chloroethane		0.824	0.780	0.716	0.673	0.581	0.715	13.23	
7)	M	Trichlorofluorometh	1.531	1.505	1.494	1.391	1.376	1.298	1.398	8.90	
8)	M	Diethyl ether	0.843	0.736	0.734	0.778	0.756	0.740	0.754	6.35	
9)	M,C	1,1-Dichloroethene	1.627	1.569	1.595	1.478	1.496	1.427	1.503	6.94	
10)	M,T	Freon113	1.000	1.080	1.064	0.974	0.974	0.941	0.990	6.53	
11)		Acrolein		0.206	0.173	0.204	0.198	0.189	0.190	8.70	
12)	M	Acetone			0.941	0.697	0.730	0.757	0.760	13.86	—
13)	M	Iodomethane		0.907	1.021	1.210	1.353	1.366	1.200	16.25	→ L
14)	M	Carbon disulfide	3.200	3.247	3.258	3.167	3.124	2.983	3.114	5.13	
15)	M	Allyl chloride		2.047	2.257	2.007	2.061	1.938	2.021	7.21	
16)		Methyl Acetate							0.000#	-1.00	
17)	M	Methylene Chloride			2.851	2.099	1.751	1.542	1.930	29.89	→ L
18)		2-Methyl-2-propanol	0.103	0.089	0.080	0.089	0.089	0.084	0.087#	9.85	
19)	M	Acrylonitrile	0.416	0.318	0.308	0.323	0.330	0.306	0.328	12.39	
20)	M	trans-1,2-Dichloroe	1.360	1.481	1.494	1.462	1.418	1.323	1.400	6.29	
21)	M	tert-Butyl Methyl E	2.398	2.172	2.161	2.247	2.265	2.174	2.206	5.23	
22)		Isopropyl ether	4.459	3.799	4.019	4.060	3.928	3.642	3.908	8.29	
23)	M,P	1,1-Dichloroethane	1.804	1.825	1.797	1.757	1.695	1.620	1.721	6.03	
24)		tert-Butyl Ethyl Et	2.961	2.907	3.012	3.036	2.983	2.922	2.943	2.94	
25)	M	2-butanone			0.877	0.788	0.855	0.827	0.827	4.80	
26)	M	cis-1,2-Dichloroeth	1.545	1.674	1.729	1.686	1.616	1.590	1.618	5.24	
27)	M	2,2-Dichloropropane	1.548	1.347	1.410	1.340	1.302	1.271	1.348	7.97	
28)	M	Propionitrile		0.108	0.105	0.123	0.125	0.117	0.115	7.07	
29)	M	Methyl acrylate	0.991	0.859	0.783	0.845	0.838	0.811	0.842	8.81	
30)	M	Methacrylonitrile		0.927	0.771	0.843	0.828	0.777	0.809	9.24	
31)	M	Bromochloromethane	0.582	0.606	0.653	0.654	0.666	0.629	0.629	4.82	
32)	M	Tetrahydrofuran			0.369	0.325	0.326	0.298	0.317	12.05	
33)	M,C	Chloroform	1.752	1.650	1.656	1.666	1.624	1.566	1.630	5.02	
34)		Cyclohexane	1.991	1.767	1.815	1.664	1.635	1.526	1.686	11.46	
35)	S	Dibromofluoromethan	0.631	0.646	0.680	0.752	0.792	0.823	0.735	11.17	
36)	M	1,1,1-Trichloroetha	1.336	1.290	1.289	1.223	1.203	1.147	1.222	7.74	
37)	M	1-Chlorobutane	2.083	1.998	2.011	1.945	1.859	1.777	1.906	7.60	
38)	M	1,1-Dichloropropene	1.332	1.332	1.348	1.289	1.253	1.208	1.273	5.73	
39)	M	Carbon tetrachlorid	0.984	0.993	1.065	1.015	0.998	0.965	0.992	4.30	
40)		tert-Amyl Methyl Et	2.444	2.265	2.314	2.365	2.320	2.232	2.287	5.13	
41)	M	1,2-Dichloroethane	1.219	1.254	1.215	1.255	1.238	1.179	1.206	4.91	
42)	M	Benzene	3.978	3.517	3.541	3.439	3.394	3.209	3.444	8.60	
43)	I	1,4-Difluorobenzene	----------	ISTD	----------						
44)	M	Trichloroethene	0.571	0.537	0.553	0.521	0.528	0.518	0.531	4.75	
45)		Methylcyclohexane	0.991	0.873	0.863	0.798	0.797	0.789	0.833	10.36	
46)	M,C	1,2-Dichloropropane	0.507	0.543	0.572	0.567	0.556	0.547	0.549	4.26	
47)	M	Methyl methacrylate		0.551	0.514	0.507	0.520	0.513	0.512	5.25	
48)	M	Dibromomethane	0.351	0.340	0.348	0.348	0.348	0.346	0.344	2.60	
49)	M	Bromodichloromethan	0.803	0.742	0.813	0.710	0.732	0.744	0.757	5.42	
50)	M	2-Nitropropane		0.160	0.155	0.155	0.158	0.149	0.153	4.41	

(#) = Out of Range ### Number of calibration levels exceeded format ###
081911V8.M Tue Oct 04 12:49:14 2011 Page 1

Response Factor Report VOA 8

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Initial Calibration

Calibration Files
1 =08191103.D 5 =08191104.D 10 =08191105.D
25 =08191106.D 50 =08191107.D 100 =08191108.D

		Compound	1	5	10	25	50	100	Avg	%RSD
51)	M	cis-1,3-Dichloropro	1.009	1.080	1.138	1.096	1.065	1.017	1.054	5.45
52)	M	4-Methyl-2-pentanon	1.061	0.892	0.743	0.822	0.814	0.805	0.837	13.61
53)	S	Toluene-d8	1.424	1.444	1.534	1.576	1.648	1.656	1.552	5.87
54)	M,C	Toluene		2.838	2.714	2.486	2.341	2.223	2.438	12.49
55)	M	trans-1,3-Dichlorop	1.110	0.936	0.936	0.946	0.924	0.876	0.935	9.60
56)	M	Ethyl methacrylate		0.820	0.830	0.803	0.804	0.748	0.779	7.90
57)	M	1,1,2-Trichloroetha	0.602	0.543	0.565	0.567	0.541	0.517	0.545	7.16
58)	M	1,3-Dichloropropane	0.934	0.975	0.932	0.962	0.950	0.888	0.921	6.33
59)	M	Tetrachloroethene	0.695	0.681	0.690	0.636	0.631	0.668	0.661	4.46
60)	M	2-Hexanone		0.884	0.663	0.671	0.688	0.739	0.719	11.91
61)	M	Chlorodibromomethan	0.601	0.597	0.622	0.649	0.641	0.613	0.616	3.57
62)	M	1,2-Dibromoethane	0.614	0.614	0.621	0.635	0.628	0.606	0.609	4.82
63)	I	Chlorobenzene-d5	----------ISTD----------							
64)	M,P	Chlorobenzene	1.376	1.384	1.402	1.316	1.276	1.264	1.313	6.28
65)	M	1,1,1,2-Tetrachloro	0.410	0.471	0.472	0.439	0.440	0.421	0.435	7.06
66)	M,C	Ethylbenzene	2.344	2.308	2.319	2.137	2.076	1.950	2.123	10.68
67)	M	m,p-xylene	1.823	1.779	1.755	1.647	1.550	1.475	1.672	8.27
68)	M	OXYL	1.992	1.811	1.856	1.727	1.688	1.618	1.735	10.04
69)	M	Styrene	1.391	1.347	1.418	1.345	1.313	1.270	1.319	6.83
70)	M,P	Bromoform	0.309	0.327	0.314	0.341	0.345	0.351	0.330	4.77
71)	M	Cumene	2.120	2.223	2.243	2.088	2.027	1.973	2.064	7.77
72)	S	4-Bromofluorobenzen	0.552	0.551	0.566	0.574	0.577		0.564	2.20
73)	M,P	1,1,2,2-Tetrachloro	0.603	0.607	0.585	0.588	0.577	0.547	0.572	6.80
74)	M	TDCB	0.165	0.178	0.170	0.177	0.176	0.169	0.169	5.46
75)	M	1,2,3-Trichloroprop	0.634	0.637	0.614	0.618	0.618	0.584	0.603	7.03
76)	M	Bromobenzene	0.882	0.890	0.916	0.876	0.842	0.809	0.852	6.70
77)	M	n-Propylbenzene	2.550	2.673	2.692	2.453	2.389	2.287	2.436	9.78
78)	M	2-Chlorotoluene	1.557	1.542	1.600	1.475	1.430	1.395	1.469	7.45
79)	M	1,3,5-Trimethylbenz	1.663	1.745	1.826	1.633	1.605	1.550	1.631	8.49
80)	M	4-Chlorotoluene	1.624	1.591	1.647	1.492	1.431	1.414	1.495	9.16
81)	M	4-Isopropyltoluene	1.819	1.851	1.949	1.755	1.676	1.607	1.720	10.85
82)	M	tert-Butylbenzene	1.360	1.434	1.457	1.350	1.330	1.303	1.346	6.64
83)	M	1,2,4-Trimethylbenz	1.730	1.781	1.763	1.658	1.574	1.490	1.618	10.23
84)	M	sec-Butylbenzene	2.396	2.405	2.491	2.259	2.196	2.098	2.244	9.60
85)	M	1,3-Dichlorobenzene	1.070	0.992	1.041	0.944	0.904	0.876	0.943	10.83
86)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
87)	M	1,4-Dichlorobenzene	2.187	2.003	2.063	1.953	1.854	1.809	1.944	7.98
88)		123TMB	3.485	3.476	3.516	3.423	3.191	3.041	3.286	7.75
89)	M	n-Butylbenzene	3.941	3.869	4.017	3.720	3.553	3.518	3.704	6.92
90)	M	1,2-Dichlorobenzene	1.822	1.825	1.913	1.810	1.752	1.695	1.785	4.58
91)	M	Hexachloroethane	0.785	0.800	0.866	0.838	0.835	0.834	0.827	3.21
92)	M	DBCP		0.161	0.157	0.170	0.175	0.175	0.169	5.10
93)	M	1,2,4-Trichlorobenz	1.346	1.355	1.440	1.372	1.314	1.339	1.356	3.04
94)	M	1,2,3-Trichlorobenz	1.194	1.214	1.293	1.266	1.236	1.193	1.226	3.29
95)	M	Hexachlorobutadiene	0.718	0.734	0.770	0.714	0.692	0.691	0.713	4.44
96)	M	Naphthalene	2.591	2.422	2.416	2.535	2.577	2.500	2.512	2.79
97)	M	2MN	1.610	1.356	1.447	1.501	1.440	1.362	1.441	6.36

(#) = Out of Range ### Number of calibration levels exceeded format ###

Compound List Report VOA 8

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	Pentafluorobenzene	168	5.29	1.000	A	1	A	B
2	M	Dichlorodifluoromethane	85	1.64	0.310	A	2	A	B
3	M,P	Chloromethane	50	1.81	0.343	A	2	A	B
4	M,C	Vinyl chloride	62	1.93	0.365	A	2	A	B
5	M	Bromomethane	94	2.26	0.427	L	2	A	B
6	M	Chloroethane	64	2.36	0.447	A	2	A	B
7	M	Trichlorofluoromethane	101	2.58	0.488	A	2	A	B
8	M	Diethyl ether	59	2.88	0.544	A	2	A	B
9	M,C	1,1-Dichloroethene	61	3.10	0.587	A	2	A	B
10	T	Freon113	101	3.07	0.581	A	2	A	B
11		Acrolein	56	3.07	0.581	A	2	A	B
12	M	Acetone	43	3.21	0.608	A	2	A	B
13	M	Iodomethane	142	3.27	0.619	L	2	A	B
14	M	Carbon disulfide	76	3.30	0.625	A	2	A	B
15	M	Allyl chloride	41	3.47	0.657	A	1	A	B
16		Methyl Acetate	43	3.50	0.662	A	2	A	B
17	M	Methylene Chloride	49	3.62	0.684	L	2	A	B
18		2-Methyl-2-propanol	59	3.70	0.700	A	2	A	B
19	M	Acrylonitrile	53	3.91	0.740	A	2	A	B
20	M	trans-1,2-Dichloroethene	61	3.83	0.724	A	2	A	B
21	M	tert-Butyl Methyl Ether	73	3.80	0.719	A	2	A	B
22		Isopropyl ether	45	4.24	0.802	A	2	A	B
23	M,P	1,1-Dichloroethane	63	4.27	0.807	A	2	A	B
24		tert-Butyl Ethyl Ether	59	4.58	0.866	A	2	A	B
25	M	2-butanone	43	4.83	0.914	A	2	A	B
26	M	cis-1,2-Dichloroethene	61	4.81	0.909	A	2	A	B
27	M	2,2-Dichloropropane	77	4.78	0.904	A	2	A	B
28	M	Propionitrile	54	4.97	0.939	A	1	A	B
29	M	Methyl acrylate	55	4.89	0.925	A	2	A	B
30	M	Methacrylonitrile	41	5.07	0.959	A	2	A	B
31	M	Bromochloromethane	130	5.03	0.952	A	2	A	B
32	M	Tetrahydrofuran	42	5.04	0.954	A	2	A	B
33	M,C	Chloroform	83	5.09	0.963	A	2	A	B
34		Cyclohexane	56	5.22	0.987	A	2	A	B
35	S	Dibromofluoromethane	113	5.24	0.992	A	1	A	B
36	M	1,1,1-Trichloroethane	97	5.23	0.990	A	2	A	B
37	M	1-Chlorobutane	56	5.34	1.010	A	2	A	B
38	M	1,1-Dichloropropene	75	5.39	1.019	A	2	A	B
39	M	Carbon tetrachloride	119	5.35	1.013	A	2	A	B
40		tert-Amyl Methyl Ether	73	5.64	1.067	A	2	A	B
41	M	1,2-Dichloroethane	62	5.66	1.072	A	2	A	B
42	M	Benzene	78	5.57	1.054	A	2	A	B
43	I	1,4-Difluorobenzene	114	5.97	1.000	A	2	A	B
44	M	Trichloroethene	130	6.18	1.035	A	2	A	B
45		Methylcyclohexane	83	6.30	1.055	A	2	A	B
46	M,C	1,2-Dichloropropane	63	6.45	1.080	A	2	A	B
47	M	Methyl methacrylate	41	6.51	1.092	A	2	A	B
48	M	Dibromomethane	174	6.57	1.100	A	2	A	B
49	M	Bromodichloromethane	83	6.70	1.123	A	2	A	B
50	M	2-Nitropropane	41	7.00	1.174	A	1	A	B
51	M	cis-1,3-Dichloropropene	75	7.15	1.198	A	2	A	B
52	M	4-Methyl-2-pentanone	43	7.29	1.222	A	2	A	B
53	S	Toluene-d8	98	7.37	1.234	A	2	A	B
54	M,C	Toluene	91	7.43	1.246	A	2	A	B
55	M	trans-1,3-Dichloropropene	75	7.72	1.294	A	2	A	B
56	M	Ethyl methacrylate	69	7.75	1.298	A	2	A	B
57	M	1,1,2-Trichloroethane	97	7.91	1.325	A	2	A	B
58	M	1,3-Dichloropropane	76	8.09	1.356	A	2	A	B
59	M	Tetrachloroethene	166	7.96	1.333	A	2	A	B
60	M	2-Hexanone	43	8.13	1.363	A	2	A	B

61	M	Chlorodibromomethane	129	8.29	1.388	A	2	A	B
62	M	1,2-Dibromoethane	107	8.43	1.412	A	2	A	B
63	I	Chlorobenzene-d5	117	8.88	1.000	A	2	A	B
64	M,P	Chlorobenzene	112	8.91	1.004	A	2	A	B
65	M	1,1,1,2-Tetrachloroethane	131	9.00	1.014	A	1	A	B
66	M,C	Ethylbenzene	91	8.99	1.012	A	2	A	B
67	M	m,p-xylene	91	9.12	1.028	A	2	A	B
68	M	OXYL	91	9.55	1.076	A	2	A	B
69	M	Styrene	104	9.58	1.080	A	2	A	B
70	M,P	Bromoform	173	9.81	1.105	A	2	A	B
71	M	Cumene	105	9.94	1.120	A	2	A	B
72	S	4-Bromofluorobenzene	95	10.16	1.144	A	2	A	B
73	M,P	1,1,2,2-Tetrachloroethane	83	10.34	1.165	A	2	A	B
74	M	TDCB	53	10.43	1.175	A	1	A	B
75	M	1,2,3-Trichloropropane	75	10.41	1.173	A	2	A	B
76	M	Bromobenzene	77	10.32	1.162	A	2	A	B
77	M	n-Propylbenzene	91	10.39	1.171	A	2	A	B
78	M	2-Chlorotoluene	91	10.52	1.185	A	2	A	B
79	M	1,3,5-Trimethylbenzene	105	10.59	1.194	A	2	A	B
80	M	4-Chlorotoluene	91	10.65	1.199	A	2	A	B
81	M	4-Isopropyltoluene	119	11.36	1.280	A	1	A	B
82	M	tert-Butylbenzene	119	10.95	1.234	A	2	A	B
83	M	1,2,4-Trimethylbenzene	105	11.02	1.241	A	2	A	B
84	M	sec-Butylbenzene	105	11.19	1.261	A	2	A	B
85	M	1,3-Dichlorobenzene	146	11.36	1.280	A	2	A	B
86	I	1,4-Dichlorobenzene-d4	152	11.45	1.000	A	1	A	B
87	M	1,4-Dichlorobenzene	146	11.47	1.002	A	2	A	B
88		123TMB	105	11.50	1.004	A	2	A	B
89	M	n-Butylbenzene	91	11.83	1.033	A	2	A	B
90	M	1,2-Dichlorobenzene	146	11.90	1.040	A	2	A	B
91	M	Hexachloroethane	117	12.13	1.060	A	2	A	B
92	M	DBCP	75	12.81	1.119	A	2	A	B
93	M	1,2,4-Trichlorobenzene	180	13.72	1.199	A	2	A	B
94	M	1,2,3-Trichlorobenzene	180	14.29	1.249	A	2	A	B
95	M	Hexachlorobutadiene	225	13.86	1.211	A	2	A	B
96	M	Naphthalene	128	14.02	1.225	A	2	A	B
97	M	2MN	142	15.31	1.338	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

081911V8.M Tue Oct 04 12:49:20 2011

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Client ID: TET15 SASno: _____ SDG No. 1108481

Lab File ID: 08191111.D BFB Injection Date: 8/19/2011

Instrument ID: VOA8 BFB Injection Time: 16:54

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15-40% of mass 95	19.0
75	30-60% of mass 95	41.0
95	Base Peak, 100% relative abundance	100.0
96	5-9% of mass 95	6.0
173	<2% of mass 174	0.0
174	>50% of mass 95	82.0
175	5-9% of mass 174	6.6
176	95-101% of mass 174	97.0
177	5-9% of mass 176	6.5

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VOA8 CCV 081911A	VOA8 CCV 081911A	08191112.D	08/19/11	17:21
02	VOA8 LCS 081911A	VOA8 LCS 081911A	08191113.D	08/19/11	17:48
03	VOA8 BLK 081911A	VOA8 BLK 081911A	08191114.D	08/19/11	18:15
04	VOA8 RLVS 081911	VOA8 RLVS 081911	08191115.D	08/19/11	18:42
05	OA-SO-TB01-081511	1108481-019A	08191116.D	08/19/11	19:08
06	A-SO-RIA33-SB10-030	1108481-016C	08191117.D	08/19/11	19:36
07	-SO-RIA33-SB10-0305	1108481-016C	08191118.D	08/19/11	20:03
08	SO-RIA33-SB10-0305I	1108481-016C	08191119.D	08/19/11	20:30
09	ZZZZZ	1108479-004B	08191120.D	08/19/11	20:57
10	ZZZZZ	1108479-005B	08191121.D	08/19/11	21:24
11	A-SO-RIA33-SB04-030	1108481-013C	08191122.D	08/19/11	21:51
12	A-SO-RIA33-SB08-030	1108481-014C	08191123.D	08/19/11	22:18
13	OA-SO-DUP05-081511	1108481-015C	08191124.D	08/19/11	22:44
14	A-SO-RIA33-SB14-050	1108481-017C	08191125.D	08/19/11	23:11
15	VOA8 RLVSB 08191	VOA8 RLVSB 08191	08191133.D	08/20/11	2:45

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\081911ACOE\08191112.D Vial: 12
Acq On : 19 Aug 2011 5:21 pm Operator: RACHEL HILL
Sample : VOA8 CCV 081911A Inst : VOA 8
Misc : CCV SW_8260S-LL Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.06min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	103	0.00
2	M	Dichlorodifluoromethane	1.279	1.171	8.4	96	0.00
3	M,P	Chloromethane	2.141	1.882	12.1	93	0.00
4	M,C	Vinyl chloride	1.548	1.585	-2.4	106	0.00
5	M	Bromomethane	1.049	0.739	29.6#	100	0.01
6	M	Chloroethane	0.715	0.629	12.0	96	0.01
7	M	Trichlorofluoromethane	1.398	1.210	13.4	90	0.00
8	M	Diethyl ether	0.754	0.763	-1.2	104	0.00
9	M,C	1,1-Dichloroethene	1.503	1.469	2.3	101	0.00
10	M,T	Freon113	0.990	0.928	6.3	98	0.00
11		Acrolein	0.190	0.194	-2.1	101	0.00
12	M	Acetone	0.760	0.729	4.1	103	0.00
13	M	Iodomethane	1.200	1.362	-13.5	104	0.00
14	M	Carbon disulfide	3.114	3.057	1.8	101	0.00
15	M	Allyl chloride	2.021	2.330	-15.3	116	0.00
16		Methyl Acetate	0.000	2.176	0.0	0#	0.01
17	M	Methylene Chloride	1.930	1.798	6.8	106	0.00
18		2-Methyl-2-propanol	0.087	0.011#	87.4#	13#	0.00
19	M	Acrylonitrile	0.328	0.316	3.7	98	0.00
20	M	trans-1,2-Dichloroethene	1.400	1.353	3.4	98	0.00
21	M	tert-Butyl Methyl Ether	2.206	4.167	88.9#	189#	0.00
22		Isopropyl ether	3.908	3.856	1.3	101	0.00
23	M,P	1,1-Dichloroethane	1.721	1.710	0.6	104	0.00
24		tert-Butyl Ethyl Ether	2.943	2.958	-0.5	102	0.00
25	M	2-butanone	0.827	0.767	7.3	92	0.00
26	M	cis-1,2-Dichloroethene	1.618	1.603	0.9	102	0.00
27	M	2,2-Dichloropropane	1.348	1.258	6.7	99	0.00
28	M	Propionitrile	0.115	0.117	-1.7	96	0.00
29	M	Methyl acrylate	0.842	0.806	4.3	99	0.00
30	M	Methacrylonitrile	0.809	0.799	1.2	99	0.00
31	M	Bromochloromethane	0.629	0.636	-1.1	98	0.00
32	M	Tetrahydrofuran	0.317	0.315	0.6	99	0.00
33	M,C	Chloroform	1.630	1.606	1.5	102	0.00
34		Cyclohexane	1.686	1.578	6.4	99	0.00
35	S	Dibromofluoromethane	0.735	0.305	58.5#	40#	0.00
36	M	1,1,1-Trichloroethane	1.222	1.157	5.3	99	0.00
37	M	1-Chlorobutane	1.906	1.750	8.2	97	0.00
38	M	1,1-Dichloropropene	1.273	1.210	4.9	99	0.00
39	M	Carbon tetrachloride	0.992	0.962	3.0	99	0.00
40		tert-Amyl Methyl Ether	2.287	2.196	4.0	97	0.00
41	M	1,2-Dichloroethane	1.206	1.192	1.2	99	0.00
42	M	Benzene	3.444	3.257	5.4	99	0.00
43	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
44	M	Trichloroethene	0.531	0.521	1.9	100	0.00
45		Methylcyclohexane	0.833	0.760	8.8	97	0.00
46	M,C	1,2-Dichloropropane	0.549	0.555	-1.1	101	0.00
47	M	Methyl methacrylate	0.512	0.502	2.0	98	0.00
48	M	Dibromomethane	0.344	0.348	-1.2	101	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\081911ACOE\08191112.D Vial: 12
Acq On : 19 Aug 2011 5:21 pm Operator: RACHEL HILL
Sample : VOA8 CCV 081911A Inst : VOA 8
Misc : CCV SW_8260S-LL Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.06min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
49	M	Bromodichloromethane	0.757	0.687	9.2	95	0.00
50	M	2-Nitropropane	0.153	0.136	11.1	87	0.00
51	M	cis-1,3-Dichloropropene	1.054	1.075	-2.0	102	0.00
52	M	4-Methyl-2-pentanone	0.837	0.795	5.0	99	0.00
53	S	~~Toluene-d8~~	1.552	0.710	~~54.3#~~	44#	0.00
54	M,C	Toluene	2.438	2.355	3.4	102	0.00
55	M	trans-1,3-Dichloropropene	0.935	0.910	2.7	100	0.00
56	M	Ethyl methacrylate	0.779	0.786	-0.9	99	0.00
57	M	1,1,2-Trichloroethane	0.545	0.543	0.4	102	0.00
58	M	1,3-Dichloropropane	0.921	0.925	-0.4	99	0.00
59	M	Tetrachloroethene	0.661	0.637	3.6	102	0.00
60	M	2-Hexanone	0.719	0.663	7.8	98	0.00
61	M	Chlorodibromomethane	0.616	0.628	-1.9	99	0.00
62	M	1,2-Dibromoethane	0.609	0.616	-1.1	99	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	100	0.00
64	M,P	Chlorobenzene	1.313	1.240	5.6	97	0.00
65	M	1,1,1,2-Tetrachloroethane	0.435	0.428	1.6	97	0.00
66	M,C	Ethylbenzene	2.123	2.039	4.0	98	0.00
67	M	m,p-xylene	1.672	1.524	8.9	99	0.00
68	M	OXYL	1.735	1.622	6.5	96	0.00
69	M	Styrene	1.319	1.357	-2.9	104	0.00
70	M,P	Bromoform	0.330	0.343	-3.9	100	0.00
71	M	Cumene	2.064	1.970	4.6	97	0.00
72	S	~~4-Bromofluorobenzene~~	0.564	0.272	~~51.8#~~	47#	0.00
73	M,P	1,1,2,2-Tetrachloroethane	0.572	0.576	-0.7	100	0.00
74	M	TDCB	0.169	0.166	1.8	95	0.00
75	M	1,2,3-Trichloropropane	0.603	0.589	2.3	96	0.00
76	M	Bromobenzene	0.852	0.831	2.5	99	0.00
77	M	n-Propylbenzene	2.436	2.446	-0.4	103	0.00
78	M	2-Chlorotoluene	1.469	1.408	4.2	99	0.00
79	M	1,3,5-Trimethylbenzene	1.631	1.601	1.8	100	0.00
80	M	4-Chlorotoluene	1.495	1.464	2.1	103	0.00
81	M	4-Isopropyltoluene	1.720	1.607	6.6	96	0.00
82	M	tert-Butylbenzene	1.346	1.319	2.0	99	0.00
83	M	1,2,4-Trimethylbenzene	1.618	1.553	4.0	99	0.00
84	M	sec-Butylbenzene	2.244	2.178	2.9	99	0.00
85	M	1,3-Dichlorobenzene	0.943	0.905	4.0	100	0.00
86	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	101	0.00
87	M	1,4-Dichlorobenzene	1.944	1.809	6.9	98	0.00
88		123TMB	3.286	3.046	7.3	96	0.00
89	M	n-Butylbenzene	3.704	3.417	7.7	97	0.00
90	M	1,2-Dichlorobenzene	1.785	1.735	2.8	100	0.00
91	M	Hexachloroethane	0.827	0.796	3.7	96	0.00
92	M	DBCP	0.169	0.166	1.8	96	0.00
93	M	1,2,4-Trichlorobenzene	1.356	1.315	3.0	101	0.00
94	M	1,2,3-Trichlorobenzene	1.226	1.198	2.3	98	0.00
95	M	Hexachlorobutadiene	0.713	0.697	2.2	102	0.00

(#) = Out of Range
08191112.D 081911V8.M Tue Oct 04 12:49:36 2011 Page 2

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\081911ACOE\08191112.D Vial: 12
Acq On : 19 Aug 2011 5:21 pm Operator: RACHEL HILL
Sample : VOA8 CCV 081911A Inst : VOA 8
Misc : CCV SW_8260S-LL Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\081911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Mon Aug 22 16:57:03 2011
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.06min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
96	M	Naphthalene	2.512	2.475	1.5	97	0.00
97	M	2MN	1.441	1.341	6.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
08191112.D 081911V8.M Tue Oct 04 12:49:36 2011 Page 3

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Client ID: TET15 SASno: _____ SDG No. 1108481

Lab File ID: 08291101.D BFB Injection Date: 8/29/2011

Instrument ID: VOA8 BFB Injection Time: 13:10

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15-40% of mass 95	20.0
75	30-60% of mass 95	42.0
95	Base Peak, 100% relative abundance	100.0
96	5-9% of mass 95	6.4
173	<2% of mass 174	0.0
174	>50% of mass 95	72.0
175	5-9% of mass 174	7.7
176	95-101% of mass 174	100.0
177	5-9% of mass 176	6.2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	1ug/kg ICAL .1uL	1ug/kg ICAL .1uL	08291103.D	08/29/11	14:37
02	5ug/kg ICAL .5uL	5ug/kg ICAL .5uL	08291104.D	08/29/11	15:04
03	10ug/kg ICAL 1uL	10ug/kg ICAL 1uL	08291105.D	08/29/11	15:31
04	25ug/kg ICAL 2.5	25ug/kg ICAL 2.5	08291106.D	08/29/11	15:59
05	50ug/kg ICAL 5uL	50ug/kg ICAL 5uL	08291107.D	08/29/11	16:26
06	100ug/kg ICAL 10	100ug/kg ICAL 10	08291108.D	08/29/11	16:53
07	200ug/kg ICAL 20	200ug/kg ICAL 20	08291109.D	08/29/11	17:26

Response Factor Report VOA 8

Method : C:\HPCHEM\1\METHODS\082911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Tue Aug 30 11:39:13 2011
Response via : Initial Calibration

Calibration Files
1 =08291103.D 5 =08291104.D 10 =08291105.D
25 =08291106.D 50 =08291107.D 100 =08291108.D

		Compound	1	5	10	25	50	100	Avg	%RSD
1)	I	Pentafluorobenzene	ISTD							
2)	M	Dichlorodifluoromet	1.206	1.300	1.284	1.214	1.246	1.182	1.238	3.74
3)	M,P	Chloromethane	2.180	2.328	2.219	2.068	2.086	1.968	2.141	5.93
4)	M,C	Vinyl chloride	1.486	1.601	1.527	1.495	1.518	1.454	1.490	5.27
5)	M	Bromomethane	1.072	0.934	0.813	0.698	0.635	0.548	0.783	24.97
6)	M	Chloroethane	0.529	0.781	0.703	0.672	0.651	0.600	0.656	13.21
7)	M	Trichlorofluorometh	1.409	1.347	1.299	1.308	1.299	1.233	1.281	8.23
8)	M	Diethyl ether	0.600	0.719	0.677	0.663	0.686	0.663	0.659	6.48
9)	M,C	1,1-Dichloroethene	1.432	1.470	1.411	1.413	1.411	1.339	1.377	7.50
10)	M,T	Freon113	0.854	0.962	0.962	0.911	0.917	0.874	0.896	6.95
11)		Acrolein		0.196	0.162	0.160	0.156	0.147	0.159	13.30
12)	M	Acetone		0.967	0.647	0.474	0.524	0.375	0.562	39.55
13)	M	Iodomethane	0.596	0.709	0.829	1.048	1.157	1.183	0.945	24.64
14)	M	Carbon disulfide	3.075	3.171	3.006	3.007	2.935	2.844	2.935	7.34
15)	M	Allyl chloride		1.925	1.845	1.784	1.807	1.709	1.763	8.09
16)		Methyl Acetate		0.828	0.729	0.696	0.691	0.629	0.695	11.74
17)	M	Methylene Chloride			2.029	1.674	1.522	1.393	1.563	20.02
18)		2-Methyl-2-propanol	0.076	0.085	0.077	0.071	0.074	0.068	0.074#	8.88
19)	M	Acrylonitrile	0.325	0.311	0.292	0.262	0.281	0.270	0.285	9.08
20)	M	trans-1,2-Dichloroe	1.218	1.376	1.380	1.357	1.334	1.258	1.287	8.32
21)	M	tert-Butyl Methyl E	2.043	1.987	1.944	1.944	1.912	1.833	1.906	6.25
22)		Isopropyl ether	3.919	3.881	3.819	3.631	3.665	3.396	3.608	9.52
23)	M,P	1,1-Dichloroethane	1.658	1.804	1.704	1.645	1.637	1.545	1.619	9.07
24)		tert-Butyl Ethyl Et	2.618	2.759	2.672	2.683	2.653	2.572	2.617	4.87
25)	M	2-butanone			0.594	0.491	0.572	0.482	0.521	11.01
26)	M	cis-1,2-Dichloroeth	1.545	1.637	1.598	1.541	1.529	1.450	1.511	7.83
27)	M	2,2-Dichloropropane	1.308	1.310	1.258	1.233	1.225	1.159	1.219	7.67
28)	M	Propionitrile		0.110	0.115	0.097	0.110	0.101	0.105	7.48
29)	M	Methyl acrylate	0.884	0.832	0.754	0.717	0.730	0.686	0.752	10.57
30)	M	Methacrylonitrile	1.114	1.028	0.854	0.707	0.699	0.662	0.810	24.02
31)	M	Bromochloromethane	0.605	0.579	0.559	0.550	0.568	0.553	0.562	4.85
32)	M	Tetrahydrofuran			0.428	0.320	0.286	0.256	0.304	25.26
33)	M,C	Chloroform	1.496	1.629	1.569	1.501	1.481	1.425	1.482	7.71
34)		Cyclohexane	1.863	1.685	1.661	1.590	1.545	1.446	1.572	12.95
35)	S	Dibromofluoromethan	0.633	0.655	0.669	0.709	0.744	0.762	0.698	6.76
36)	M	1,1,1-Trichloroetha	1.179	1.229	1.199	1.152	1.116	1.046	1.118	9.98
37)	M	1-Chlorobutane	1.933	1.937	1.858	1.837	1.776	1.691	1.780	9.98
38)	M	1,1-Dichloropropene	1.189	1.212	1.220	1.206	1.178	1.142	1.163	6.77
39)	M	Carbon tetrachlorid	0.952	0.995	0.962	0.929	0.928	0.889	0.920	7.38
40)		tert-Amyl Methyl Et	2.099	2.170	2.082	1.999	1.998	1.932	2.003	7.00
41)	M	1,2-Dichloroethane	1.066	1.162	1.142	1.065	1.085	1.023	1.064	7.83
42)	M	Benzene	3.570	3.421	3.237	3.165	3.162	3.001	3.167	9.73
43)	I	1,4-Difluorobenzene	ISTD							
44)	M	Trichloroethene	0.487	0.503	0.508	0.486	0.494	0.483	0.487	4.22
45)		Methylcyclohexane	0.758	0.826	0.801	0.784	0.771	0.742	0.763	6.90
46)	M,C	1,2-Dichloropropane	0.544	0.605	0.578	0.533	0.546	0.521	0.554	5.64
47)	M	Methyl methacrylate		0.524	0.511	0.468	0.477	0.449	0.495	7.35
48)	M	Dibromomethane	0.323	0.326	0.317	0.301	0.310	0.297	0.316	4.64
49)	M	Bromodichloromethan	0.668	0.698	0.696	0.646	0.671	0.629	0.668	4.09
50)	M	2-Nitropropane		0.157	0.136	0.107	0.125	0.116	0.129	13.69
51)	M	cis-1,3-Dichloropro	0.970	0.988	0.985	0.939	0.988	0.926	0.964	2.63
52)	M	4-Methyl-2-pentanon	0.850	0.857	0.808	0.738	0.762	0.684	0.771	8.97
53)	S	Toluene-d8	1.380	1.395	1.433	1.494	1.585	1.565	1.487	5.73
54)	M,C	Toluene		2.526	2.450	2.273	2.262	2.074	2.254	9.77
55)	M	trans-1,3-Dichlorop	0.883	0.934	0.912	0.877	0.887	0.796	0.867	6.69
56)	M	Ethyl methacrylate		0.835	0.782	0.742	0.748	0.674	0.741	8.76
57)	M	1,1,2-Trichloroetha	0.495	0.543	0.555	0.509	0.511	0.471	0.506	6.98
58)	M	1,3-Dichloropropane	0.908	0.992	0.961	0.900	0.909	0.830	0.900	7.58

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report VOA 8

Method : C:\HPCHEM\1\METHODS\082911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Tue Aug 30 11:39:13 2011
Response via : Initial Calibration

Calibration Files
1 =08291103.D 5 =08291104.D 10 =08291105.D
25 =08291106.D 50 =08291107.D 100 =08291108.D

		Compound	1	5	10	25	50	100	Avg	%RSD
59)	M	Tetrachloroethene	0.614	0.641	0.642	0.602	0.616	0.575	0.606	5.30
60)	M	2-Hexanone		0.727	0.678	0.542	0.589	0.497	0.590	16.02 → L
61)	M	Chlorodibromomethan	0.549	0.618	0.615	0.560	0.596	0.561	0.580	4.95
62)	M	1,2-Dibromoethane	0.564	0.600	0.595	0.554	0.575	0.537	0.564	5.11
63)	I	Chlorobenzene-d5	----------ISTD----------							
64)	M,P	Chlorobenzene	1.454	1.579	1.527	1.456	1.420	1.354	1.438	7.10
65)	M	1,1,1,2-Tetrachloro	0.421	0.539	0.511	0.488	0.486	0.451	0.473	9.70
66)	M,C	Ethylbenzene	2.544	2.682	2.608	2.511	2.389	2.210	2.406	11.30
67)	M	m,p-xylene	1.881	2.053	1.970	1.916	1.812	1.613	1.874	8.10
68)	M	OXYL	2.060	2.112	2.038	1.979	1.921	1.797	1.931	9.13
69)	M	Styrene	1.372	1.612	1.535	1.488	1.480	1.374	1.443	8.56
70)	M,P	Bromoform	0.317	0.351	0.362	0.342	0.365	0.350	0.349	4.57
71)	M	Cumene	2.182	2.534	2.502	2.370	2.336	2.183	2.292	9.09
72)	S	4-Bromofluorobenzen	0.514	0.543	0.570	0.585	0.615		0.566	6.87
73)	M,P	1,1,2,2-Tetrachloro	0.625	0.768	0.725	0.651	0.637	0.579	0.649	11.61
74)	M	TDCB	0.178	0.202	0.204	0.186	0.191	0.174	0.186	7.33
75)	M	1,2,3-Trichloroprop	0.735	0.762	0.723	0.659	0.659	0.607	0.673	10.52
76)	M	Bromobenzene	0.976	1.138	1.066	0.999	0.991	0.912	0.989	9.85
77)	M	n-Propylbenzene	2.706	3.097	3.018	2.874	2.812	2.578	2.757	10.81
78)	M	2-Chlorotoluene	1.630	1.910	1.847	1.718	1.651	1.554	1.670	10.63
79)	M	1,3,5-Trimethylbenz	1.752	2.035	2.018	1.857	1.867	1.706	1.817	10.54
80)	M	4-Chlorotoluene	1.635	1.851	1.856	1.688	1.648	1.552	1.660	9.86
81)	M	4-Isopropyltoluene	1.867	2.145	2.102	1.968	1.923	1.763	1.894	11.62
82)	M	tert-Butylbenzene	1.379	1.641	1.615	1.532	1.532	1.429	1.487	8.81
83)	M	1,2,4-Trimethylbenz	1.847	1.999	2.011	1.859	1.804	1.637	1.794	11.91
84)	M	sec-Butylbenzene	2.370	2.881	2.783	2.562	2.537	2.351	2.503	11.34
85)	M	1,3-Dichlorobenzene	1.016	1.155	1.138	1.048	1.011	0.932	1.018	11.31
86)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
87)	M	1,4-Dichlorobenzene	2.243	2.614	2.468	2.254	2.221	2.143	2.278	8.90
88)		123TMB	3.938	4.371	4.202	3.892	3.908	3.681	3.899	8.91
89)	M	n-Butylbenzene	4.348	4.983	4.955	4.620	4.601	4.346	4.532	8.54
90)	M	1,2-Dichlorobenzene	2.148	2.400	2.257	2.059	2.114	1.999	2.125	7.76
91)	M	Hexachloroethane	0.941	1.108	1.062	1.031	1.043	1.020	1.024	5.55
92)	M	DBCP		0.200	0.200	0.186	0.203	0.195	0.197	3.15
93)	M	1,2,4-Trichlorobenz	1.472	1.631	1.692	1.569	1.615	1.542	1.567	5.56
94)	M	1,2,3-Trichlorobenz	1.367	1.516	1.537	1.422	1.454	1.368	1.428	5.54
95)	M	Hexachlorobutadiene	0.813	0.906	0.907	0.857	0.877	0.818	0.849	6.27
96)	M	Naphthalene	2.580	2.895	2.886	2.716	2.877	2.697	2.775	4.28
97)	M	2MN	1.553	1.609	1.685	1.542	1.624	1.454	1.560	5.57

(#) = Out of Range ### Number of calibration levels exceeded format ###

Compound List Report VOA 8

Method : C:\HPCHEM\1\METHODS\082911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Tue Aug 30 11:39:13 2011
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp RT	Rel RT	Cal	#Qual	A/H	ID
1	I	Pentafluorobenzene	168	5.28	1.000	A	1	A	B
2	M	Dichlorodifluoromethane	85	1.64	0.311	A	2	A	B
3	M,P	Chloromethane	50	1.83	0.346	A	2	A	B
4	M,C	Vinyl chloride	62	1.94	0.367	A	2	A	B
5	M	Bromomethane	94	2.27	0.430	Q	2	A	B
6	M	Chloroethane	64	2.38	0.451	A	2	A	B
7	M	Trichlorofluoromethane	101	2.59	0.491	A	2	A	B
8	M	Diethyl ether	59	2.88	0.545	A	2	A	B
9	M,C	1,1-Dichloroethene	61	3.11	0.588	A	2	A	B
10	T	Freon113	101	3.07	0.582	A	2	A	B
11		Acrolein	56	3.07	0.582	A	2	A	B
12	M	Acetone	43	3.22	0.609	Q	2	A	B
13	M	Iodomethane	142	3.29	0.622	L	2	A	B
14	M	Carbon disulfide	76	3.31	0.627	A	2	A	B
15	M	Allyl chloride	41	3.48	0.659	A	1	A	B
16		Methyl Acetate	43	3.50	0.663	A	2	A	B
17	M	Methylene Chloride	49	3.62	0.686	L	2	A	B
18		2-Methyl-2-propanol	59	3.71	0.702	A	2	A	B
19	M	Acrylonitrile	53	3.92	0.742	A	2	A	B
20	M	trans-1,2-Dichloroethene	61	3.83	0.726	A	2	A	B
21	M	tert-Butyl Methyl Ether	73	3.81	0.721	A	2	A	B
22		Isopropyl ether	45	4.25	0.804	A	2	A	B
23	M,P	1,1-Dichloroethane	63	4.26	0.807	A	2	A	B
24		tert-Butyl Ethyl Ether	59	4.58	0.866	A	2	A	B
25	M	2-butanone	43	4.84	0.915	A	2	A	B
26	M	cis-1,2-Dichloroethene	61	4.80	0.909	A	2	A	B
27	M	2,2-Dichloropropane	77	4.79	0.906	A	2	A	B
28	M	Propionitrile	54	4.96	0.939	A	1	A	B
29	M	Methyl acrylate	55	4.90	0.927	A	2	A	B
30	M	Methacrylonitrile	41	5.07	0.960	L	2	A	B
31	M	Bromochloromethane	130	5.04	0.954	A	2	A	B
32	M	Tetrahydrofuran	42	5.04	0.954	L	2	A	B
33	M,C	Chloroform	83	5.09	0.963	A	2	A	B
34		Cyclohexane	56	5.22	0.987	A	2	A	B
35	S	Dibromofluoromethane	113	5.25	0.994	A	1	A	B
36	M	1,1,1-Trichloroethane	97	5.23	0.990	A	2	A	B
37	M	1-Chlorobutane	56	5.33	1.010	A	2	A	B
38	M	1,1-Dichloropropene	75	5.38	1.019	A	2	A	B
39	M	Carbon tetrachloride	119	5.35	1.013	A	2	A	B
40		tert-Amyl Methyl Ether	73	5.65	1.069	A	2	A	B
41	M	1,2-Dichloroethane	62	5.66	1.072	A	2	A	B
42	M	Benzene	78	5.58	1.056	A	2	A	B
43	I	1,4-Difluorobenzene	114	5.97	1.000	A	2	A	B
44	M	Trichloroethene	130	6.18	1.037	A	2	A	B
45		Methylcyclohexane	83	6.29	1.055	A	2	A	B
46	M,C	1,2-Dichloropropane	63	6.45	1.081	A	2	A	B
47	M	Methyl methacrylate	41	6.51	1.092	A	2	A	B
48	M	Dibromomethane	174	6.56	1.100	A	2	A	B
49	M	Bromodichloromethane	83	6.70	1.123	A	2	A	B
50	M	2-Nitropropane	41	6.99	1.172	A	1	A	B
51	M	cis-1,3-Dichloropropene	75	7.15	1.198	A	2	A	B
52	M	4-Methyl-2-pentanone	43	7.29	1.222	A	2	A	B
53	S	Toluene-d8	98	7.36	1.235	A	2	A	B
54	M,C	Toluene	91	7.43	1.246	A	2	A	B
55	M	trans-1,3-Dichloropropene	75	7.72	1.294	A	2	A	B
56	M	Ethyl methacrylate	69	7.74	1.298	A	2	A	B
57	M	1,1,2-Trichloroethane	97	7.90	1.325	A	2	A	B
58	M	1,3-Dichloropropane	76	8.09	1.356	A	2	A	B
59	M	Tetrachloroethene	166	7.95	1.333	A	2	A	B
60	M	2-Hexanone	43	8.13	1.363	L	2	A	B
61	M	Chlorodibromomethane	129	8.28	1.388	A	2	A	B
62	M	1,2-Dibromoethane	107	8.42	1.411	A	2	A	B
63	I	Chlorobenzene-d5	117	8.87	1.000	A	2	A	B
64	M,P	Chlorobenzene	112	8.91	1.004	A	2	A	B
65	M	1,1,1,2-Tetrachloroethane	131	9.00	1.014	A	1	A	B
66	M,C	Ethylbenzene	91	8.98	1.012	A	2	A	B
67	M	m,p-xylene	91	9.11	1.027	A	2	A	B

68	M	OXYL	91	9.55	1.076	A	2	A	B
69	M	Styrene	104	9.57	1.079	A	2	A	B
70	M,P	Bromoform	173	9.80	1.104	A	2	A	B
71	M	Cumene	105	9.94	1.120	A	2	A	B
72	S	4-Bromofluorobenzene	95	10.15	1.144	A	2	A	B
73	M,P	1,1,2,2-Tetrachloroethane	83	10.34	1.165	A	2	A	B
74	M	TDCB	53	10.42	1.174	A	1	A	B
75	M	1,2,3-Trichloropropane	75	10.41	1.173	A	2	A	B
76	M	Bromobenzene	77	10.31	1.162	A	2	A	B
77	M	n-Propylbenzene	91	10.38	1.170	A	2	A	B
78	M	2-Chlorotoluene	91	10.51	1.184	A	2	A	B
79	M	1,3,5-Trimethylbenzene	105	10.59	1.194	A	2	A	B
80	M	4-Chlorotoluene	91	10.64	1.199	A	2	A	B
81	M	4-Isopropyltoluene	119	11.35	1.279	A	1	A	B
82	M	tert-Butylbenzene	119	10.94	1.233	A	2	A	B
83	M	1,2,4-Trimethylbenzene	105	11.01	1.241	A	2	A	B
84	M	sec-Butylbenzene	105	11.19	1.261	A	2	A	B
85	M	1,3-Dichlorobenzene	146	11.36	1.280	A	2	A	B
86	I	1,4-Dichlorobenzene-d4	152	11.44	1.000	A	1	A	B
87	M	1,4-Dichlorobenzene	146	11.47	1.003	A	2	A	B
88		123TMB	105	11.49	1.005	A	2	A	B
89	M	n-Butylbenzene	91	11.81	1.033	A	2	A	B
90	M	1,2-Dichlorobenzene	146	11.89	1.040	A	2	A	B
91	M	Hexachloroethane	117	12.12	1.060	A	2	A	B
92	M	DBCP	75	12.81	1.120	A	2	A	B
93	M	1,2,4-Trichlorobenzene	180	13.72	1.200	A	2	A	B
94	M	1,2,3-Trichlorobenzene	180	14.29	1.250	A	2	A	B
95	M	Hexachlorobutadiene	225	13.85	1.212	A	2	A	B
96	M	Naphthalene	128	14.01	1.225	A	2	A	B
97	M	2MN	142	15.30	1.338	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

082911V8.M Wed Nov 16 15:46:31 2011

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Client ID: TET15 SASno: _____ SDG No. 1108481

Lab File ID: 08291111.D BFB Injection Date: 8/29/2011

Instrument ID: VOA8 BFB Injection Time: 18:20

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15-40% of mass 95	19.0
75	30-60% of mass 95	40.0
95	Base Peak, 100% relative abundance	100.0
96	5-9% of mass 95	6.2
173	<2% of mass 174	0.0
174	>50% of mass 95	74.0
175	5-9% of mass 174	6.9
176	95-101% of mass 174	100.0
177	5-9% of mass 176	6.1

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VOA8 CCV 082911	VOA8 CCV 082911	08291112.D	08/29/11	18:48
02	VOA8 LCS 082911	VOA8 LCS 082911	08291113.D	08/29/11	19:15
03	VOA8 LCSD 082911	VOA8 LCSD 082911	08291114.D	08/29/11	19:43
04	VOA8 BLK 082911	VOA8 BLK 082911	08291115.D	08/29/11	20:10
05	VOA8 RLVS1 08291	VOA8 RLVS1 08291	08291116.D	08/29/11	20:37
06	A-SO-RIA33-SB02-050	1108481-018C	08291117.D	08/29/11	21:05
07	ZZZZZ	1108666-001C	08291118.D	08/29/11	21:32
08	ZZZZZ	1108666-002C	08291119.D	08/29/11	21:59
09	ZZZZZ	1108666-003A	08291120.D	08/29/11	22:26
10	ZZZZZ	1108666-004A	08291121.D	08/29/11	22:53
11	ZZZZZ	1108666-005A	08291122.D	08/29/11	23:19
12	ZZZZZ	1108666-006A	08291123.D	08/29/11	23:46
13	ZZZZZ	1108666-007A	08291124.D	08/30/11	0:13
14	ZZZZZ	1108666-008A	08291125.D	08/30/11	0:40
15	ZZZZZ	1108825-001A	08291126.D	08/30/11	1:06
16	ZZZZZ	1108825-002A	08291127.D	08/30/11	1:33
17	VOA8 RLVS1 08291	VOA8 RLVS1 08291	08291134.D	08/30/11	4:40

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\082911LL\08291112.D Vial: 12
Acq On : 29 Aug 2011 6:48 pm Operator: RACHEL HILL
Sample : VOA8 CCV 082911 Inst : VOA 8
Misc : CCV SW 8260S Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\082911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Tue Aug 30 11:39:13 2011
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.06min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	107	0.00
2	M	Dichlorodifluoromethane	1.238	1.352	-9.2	116	0.01
3	M,P	Chloromethane	2.141	2.051	4.2	105	0.00
4	M,C	Vinyl chloride	1.490	1.657	-11.2	117	0.01
5	M	Bromomethane	0.783	0.660	15.7	111	0.00
6	M	Chloroethane	0.656	0.650	0.9	107	0.00
7	M	Trichlorofluoromethane	1.281	1.159	9.5	95	0.00
8	M	Diethyl ether	0.659	0.704	-6.8	110	0.00
9	M,C	1,1-Dichloroethene	1.377	1.404	-2.0	106	0.00
10	M,T	Freon113	0.896	0.872	2.7	102	0.01
11		Acrolein	0.159	0.150	5.7	103	0.00
12	M	Acetone	0.562	0.321	42.9#	66	0.00
13	M	Iodomethane	0.945	1.148	21.6#	106	0.00
14	M	Carbon disulfide	2.935	3.011	-2.6	110	0.01
15	M	Allyl chloride	1.763	1.712	2.9	101	0.00
16		Methyl Acetate	0.695	0.691	0.6	107	0.00
17	M	Methylene Chloride	1.563	1.459	6.7	103	0.00
18		2-Methyl-2-propanol	0.074	0.010#	86.5#	14#	0.00
19	M	Acrylonitrile	0.285	0.277	2.8	106	0.00
20	M	trans-1,2-Dichloroethene	1.287	1.287	0.0	103	0.00
21	M	tert-Butyl Methyl Ether	1.906	3.659	92.0#	205#	0.00
22		Isopropyl ether	3.608	3.596	0.3	105	0.00
23	M,P	1,1-Dichloroethane	1.619	1.592	1.7	104	0.01
24		tert-Butyl Ethyl Ether	2.617	2.632	-0.6	106	0.00
25	M	2-butanone	0.521	0.464	10.9	87	0.00
26	M	cis-1,2-Dichloroethene	1.511	1.477	2.3	103	0.01
27	M	2,2-Dichloropropane	1.219	1.151	5.6	101	0.00
28	M	Propionitrile	0.105	0.101	3.8	99	0.00
29	M	Methyl acrylate	0.752	0.708	5.9	104	0.00
30	M	Methacrylonitrile	0.810	0.718	11.4	110	0.00
31	M	Bromochloromethane	0.562	0.562	0.0	106	0.00
32	M	Tetrahydrofuran	0.304	0.291	4.3	109	0.00
33	M,C	Chloroform	1.482	1.427	3.7	103	0.00
34		Cyclohexane	1.572	1.568	0.3	109	0.00
35	S	Dibromofluoromethane	0.698	0.302	56.7#	43#	0.00
36	M	1,1,1-Trichloroethane	1.118	1.077	3.7	103	0.00
37	M	1-Chlorobutane	1.780	1.714	3.7	103	0.00
38	M	1,1-Dichloropropene	1.163	1.163	0.0	106	0.00
39	M	Carbon tetrachloride	0.920	0.902	2.0	104	0.00
40		tert-Amyl Methyl Ether	2.003	1.971	1.6	106	0.00
41	M	1,2-Dichloroethane	1.064	1.055	0.8	104	0.00
42	M	Benzene	3.167	3.090	2.4	105	0.00
43	I	1,4-Difluorobenzene	1.000	1.000	0.0	103	0.00
44	M	Trichloroethene	0.487	0.497	-2.1	103	0.00
45		Methylcyclohexane	0.763	0.760	0.4	101	0.01
46	M,C	1,2-Dichloropropane	0.554	0.547	1.3	103	0.00
47	M	Methyl methacrylate	0.495	0.494	0.2	106	0.00
48	M	Dibromomethane	0.316	0.316	0.0	105	0.00
49	M	Bromodichloromethane	0.668	0.648	3.0	99	0.00
50	M	2-Nitropropane	0.129	0.110	14.7	90	0.01
51	M	cis-1,3-Dichloropropene	0.964	0.797	17.3	83	0.00
52	M	4-Methyl-2-pentanone	0.771	0.607	21.3#	82	0.00
53	S	Toluene-d8	1.487	0.627	57.8#	41#	0.00
54	M,C	Toluene	2.254	2.160	4.2	98	0.00
55	M	trans-1,3-Dichloropropene	0.867	0.861	0.7	100	0.00
56	M	Ethyl methacrylate	0.741	0.731	1.3	100	0.00

(#) = Out of Range
08291112.D 082911V8.M Wed Nov 16 15:48:14 2011 Page 1

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\082911LL\08291112.D Vial: 12
Acq On : 29 Aug 2011 6:48 pm Operator: RACHEL HILL
Sample : VOA8 CCV 082911 Inst : VOA 8
Misc : CCV SW 8260S Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\082911V8.M (RTE Integrator)
Title : VOA #8 8260 Low Level Soil
Last Update : Tue Aug 30 11:39:13 2011
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.06min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
57	M	1,1,2-Trichloroethane	0.506	0.504	0.4	101	0.00
58	M	1,3-Dichloropropane	0.900	0.883	1.9	100	0.00
59	M	Tetrachloroethene	0.606	0.599	1.2	100	0.00
60	M	2-Hexanone	0.590	0.536	9.2	93	0.00
61	M	Chlorodibromomethane	0.580	0.593	-2.2	102	0.00
62	M	1,2-Dibromoethane	0.564	0.567	-0.5	101	0.01
63	I	Chlorobenzene-d5	1.000	1.000	0.0	102	0.00
64	M,P	Chlorobenzene	1.438	1.398	2.8	101	0.00
65	M	1,1,1,2-Tetrachloroethane	0.473	0.467	1.3	98	0.00
66	M,C	Ethylbenzene	2.406	2.383	1.0	102	0.00
67	M	m,p-xylene	1.874	1.746	6.8	99	0.01
68	M	OXYL	1.931	1.834	5.0	98	0.00
69	M	Styrene	1.443	1.508	-4.5	104	0.00
70	M,P	Bromoform	0.349	0.367	-5.2	103	0.00
71	M	Cumene	2.292	2.265	1.2	99	0.00
72	S	4-Bromofluorobenzene	0.566	0.265	53.2#	44#	0.00
73	M,P	1,1,2,2-Tetrachloroethane	0.649	0.650	-0.2	104	0.00
74	M	TDCB	0.186	0.177	4.8	95	0.01
75	M	1,2,3-Trichloropropane	0.673	0.652	3.1	101	0.00
76	M	Bromobenzene	0.989	0.941	4.9	97	0.00
77	M	n-Propylbenzene	2.757	2.771	-0.5	101	0.01
78	M	2-Chlorotoluene	1.670	1.592	4.7	99	0.01
79	M	1,3,5-Trimethylbenzene	1.817	1.800	0.9	99	0.00
80	M	4-Chlorotoluene	1.660	1.685	-1.5	105	0.00
81	M	4-Isopropyltoluene	1.894	1.790	5.5	95	0.01
82	M	tert-Butylbenzene	1.487	1.471	1.1	98	0.00
83	M	1,2,4-Trimethylbenzene	1.794	1.723	4.0	98	0.00
84	M	sec-Butylbenzene	2.503	2.453	2.0	99	0.00
85	M	1,3-Dichlorobenzene	1.018	0.973	4.4	98	0.00
86	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	102	0.01
87	M	1,4-Dichlorobenzene	2.278	2.202	3.3	101	0.00
88		123TMB	3.899	3.784	2.9	99	0.00
89	M	n-Butylbenzene	4.532	4.346	4.1	97	0.01
90	M	1,2-Dichlorobenzene	2.125	2.043	3.9	99	0.00
91	M	Hexachloroethane	1.024	0.977	4.6	96	0.01
92	M	DBCP	0.197	0.206	-4.6	104	0.00
93	M	1,2,4-Trichlorobenzene	1.567	1.510	3.6	96	0.00
94	M	1,2,3-Trichlorobenzene	1.428	1.359	4.8	96	0.00
95	M	Hexachlorobutadiene	0.849	0.829	2.4	97	0.00
96	M	Naphthalene	2.775	2.764	0.4	98	0.01
97	M	2MN	1.560	1.388	11.0	87	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
08291112.D 082911V8.M Wed Nov 16 15:48:15 2011 Page 2

4A

SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VOA8 BLK 081911A

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Lab File ID: 08191114.D Lab Sample ID: VOA8 BLK 081911A

Date Analyzed: 8/19/2011 Time Analyzed: 18:15

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VOA8 LCS 081911A	VOA8 LCS 081911A	08191113.D	17:48
02	OA-SO-TB01-08151	1108481-019A	08191116.D	19:08
03	A-SO-RIA33-SB10-03	1108481-016C	08191117.D	19:36
04	SO-RIA33-SB10-030	1108481-016C	08191118.D	20:03
05	O-RIA33-SB10-0305	1108481-016C	08191119.D	20:30
06	ZZZZZ	1108479-004B	08191120.D	20:57
07	ZZZZZ	1108479-005B	08191121.D	21:24
08	A-SO-RIA33-SB04-03	1108481-013C	08191122.D	21:51
09	A-SO-RIA33-SB08-03	1108481-014C	08191123.D	22:18
10	A-SO-DUP05-08151	1108481-015C	08191124.D	22:44
11	A-SO-RIA33-SB14-05	1108481-017C	08191125.D	23:11

COMMENTS: _____

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 081911A

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 081911A

Sample wt/vol: (g/mL) G Lab File ID: 08191114.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/19/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
630-20-6	1,1,1,2-Tetrachloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
75-34-3	1,1-Dichloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
563-58-6	1,1-Dichloropropene	1	U
87-61-6	1,2,3-Trichlorobenzene	0.51	J
96-18-4	1,2,3-Trichloropropane	2	U
526-73-8	1,2,3-Trimethylbenzene	1	U
120-82-1	1,2,4-Trichlorobenzene	2	U
95-63-6	1,2,4-Trimethylbenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	2	U
106-93-4	1,2-Dibromoethane	1	U
95-50-1	1,2-Dichlorobenzene	1	U
107-06-2	1,2-Dichloroethane	1	U
78-87-5	1,2-Dichloropropane	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
142-28-9	1,3-Dichloropropane	1	U
106-46-7	1,4-Dichlorobenzene	1	U
594-20-7	2,2-Dichloropropane	1	U
78-93-3	2-Butanone	10	U
110-75-8	2-Chloroethyl vinyl ether	2	U
95-49-8	2-Chlorotoluene	1	U
591-78-6	2-Hexanone	5	U
75-65-0	2-Methyl-2-propanol	50	U
91-57-6	2-Methylnaphthalene	5	U
79-46-9	2-Nitropropane	2	U
106-43-4	4-Chlorotoluene	1	U
99-87-6	4-Isopropyltoluene	1	U
108-10-1	4-Methyl-2-pentanone	5	U
67-64-1	Acetone	5.8	
107-02-8	Acrolein	5	U

FORM I VOA SW8260B

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 081911A

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 081911A

Sample wt/vol: (g/mL) G Lab File ID: 08191114.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/19/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
107-13-1	Acrylonitrile	2	U
71-43-2	Benzene	0.6	U
108-86-1	Bromobenzene	1	U
74-97-5	Bromochloromethane	1	U
75-27-4	Bromodichloromethane	1	U
75-25-2	Bromoform	1	U
74-83-9	Bromomethane	4	U
75-15-0	Carbon disulfide	2	U
56-23-5	Carbon tetrachloride	1	U
108-90-7	Chlorobenzene	1	U
124-48-1	Chlorodibromomethane	1	U
75-00-3	Chloroethane	5	U
67-66-3	Chloroform	1	U
74-87-3	Chloromethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
98-82-8	Cumene	1	U
110-82-7	Cyclohexane	5	U
74-95-3	Dibromomethane	2	U
75-71-8	Dichlorodifluoromethane	1	U
60-29-7	Diethyl ether	1	U
97-63-2	Ethyl methacrylate	2	U
100-41-4	Ethylbenzene	1	U
87-68-3	Hexachlorobutadiene	1	U
67-72-1	Hexachloroethane	1	U
74-88-4	Iodomethane	2	U
108-20-3	Isopropyl ether	1	U
179601-23-1	m,p-Xylene	2	U
79-20-9	Methyl Acetate	1	U
108-87-2	Methylcyclohexane	1	U
75-09-2	Methylene chloride	2	U
91-20-3	Naphthalene	5	U
104-51-8	n-Butylbenzene	1	U
103-65-1	n-Propylbenzene	1	U
95-47-6	o-Xylene	1	U

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 081911A

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 081911A

Sample wt/vol: (g/mL) G Lab File ID: 08191114.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/19/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) µg/Kg	Q
135-98-8	sec-Butylbenzene	1	U
100-42-5	Styrene	1	U
994-05-8	tert-Amyl Methyl Ether	2	U
637-92-3	tert-Butyl Ethyl Ether	2	U
1634-04-4	tert-Butyl Methyl Ether	2	U
98-06-6	tert-Butylbenzene	1	U
127-18-4	Tetrachloroethene	1	U
108-88-3	Toluene	0.79	J
156-60-5	trans-1,2-Dichloroethene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
110-57-6	trans-1,4-Dichloro-2-butene	2	U
79-01-6	Trichloroethene	1	U
75-69-4	Trichlorofluoromethane	1	U
108-05-4	Vinyl acetate	25	U
75-01-4	Vinyl chloride	0.8	U
1330-20-7	Xylenes, Total	3	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID VOA8 LCS 081911A Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
1,1,1,2-Tetrachloroethane	10	0	11	106	75-125
1,1,1-Trichloroethane	10	0	10	105	70-135
1,1,2,2-Tetrachloroethane	10	0	11	107	55-130
1,1,2-Trichloro-1,2,2-trifluoroethane	10	0	11	106	20-165
1,1,2-Trichloroethane	10	0	11	106	60-125
1,1-Dichloroethane	10	0	11	111	75-125
1,1-Dichloroethene	10	0	11	107	65-135
1,1-Dichloropropene	10	0	10	105	70-135
1,2,3-Trichlorobenzene	10	0	11	113	60-135
1,2,3-Trichloropropane	10	0	10	101	65-130
1,2,3-Trimethylbenzene	10	0	11	106	74-126
1,2,4-Trichlorobenzene	10	0	11	110	65-130
1,2,4-Trimethylbenzene	10	0	11	109	65-135
1,2-Dibromo-3-chloropropane	10	0	11	106	40-135
1,2-Dibromoethane	10	0	11	107	70-125
1,2-Dichlorobenzene	10	0	10	104	75-120
1,2-Dichloroethane	10	0	10	104	70-135
1,2-Dichloropropane	10	0	11	110	70-120
1,3,5-Trimethylbenzene	10	0	11	107	65-135
1,3-Dichlorobenzene	10	0	11	105	70-125
1,3-Dichloropropane	10	0	11	109	75-125
1,4-Dichlorobenzene	10	0	11	107	70-125
2,2-Dichloropropane	10	0	10	101	65-135
2-Butanone	10	0	9.6	96	30-160
~~2-Chloroethyl vinyl ether~~	10	0	0	0*	62-125
2-Chlorotoluene	10	0	10	104	70-130
2-Hexanone	10	0	9.6	96	45-145
2-Methyl-2-propanol	50	0	53	105	70-130
2-Methylnaphthalene	10	0	12	123	57-165
2-Nitropropane	10	0	9.9	99	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 84 outside limits

COMMENTS:

FORM III SW8260B

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID VOA8 LCS 081911A Level:(low/med) LOW

4-Chlorotoluene	10	0	11	107	75-125
4-Isopropyltoluene	10	0	11	107	75-135
4-Methyl-2-pentanone	10	0	9.8	98	45-145
Acetone	10	0	13	126	20-160
Acrylonitrile	10	0	9.6	96	63-132
Benzene	10	0	10	103	75-125
Bromobenzene	10	0	11	107	65-120
Bromochloromethane	10	0	11	106	70-125
Bromodichloromethane	10	0	9.8	98	70-130
Bromoform	10	0	10	100	55-135
Bromomethane	10	0	11	111	30-160
Carbon disulfide	10	0	11	107	45-160
Carbon tetrachloride	10	0	11	108	65-135
Chlorobenzene	10	0	11	106	75-125
Chlorodibromomethane	10	0	10	102	65-130
Chloroethane	10	0	11	106	40-155
Chloroform	10	0	10	104	70-125
Chloromethane	10	0	9.8	98	50-130
cis-1,2-Dichloroethene	10	0	10	104	65-125
cis-1,3-Dichloropropene	10	0	11	108	70-125
Cumene	10	0	11	107	75-130
Cyclohexane	10	0	11	108	75-130
Dibromomethane	10	0	10	103	75-130
Dichlorodifluoromethane	10	0	10	103	35-135
Diethyl ether	10	0	11	106	66-133
Ethyl methacrylate	10	0	11	111	67-133
Ethylbenzene	10	0	11	109	75-125
Hexachlorobutadiene	10	0	11	112	55-140
Hexachloroethane	10	0	10	102	66-117
Iodomethane	10	0	11	105	10-171
Isopropyl ether	10	0	11	110	68-139
m,p-Xylene	20	0	21	104	80-125
Methyl Acetate	10	0	0	0*	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 84 outside limits

COMMENTS:

FORM III SW8260B

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID VOA8 LCS 081911A Level:(low/med) LOW

Methylene chloride	10	0	9.2	92	55-140
Naphthalene	10	0	11	113	40-125
n-Butylbenzene	10	0	11	109	65-140
n-Propylbenzene	10	0	11	108	65-135
o-Xylene	10	0	10	105	75-125
sec-Butylbenzene	10	0	11	108	65-130
Styrene	10	0	11	111	75-125
tert-Amyl Methyl Ether	10	0	10	103	70-130
tert-Butyl Ethyl Ether	10	0	11	106	66-136
tert-Butyl Methyl Ether	20	0	20	102	63-136
tert-Butylbenzene	10	0	11	106	65-130
Tetrachloroethene	10	0	11	109	65-140
Toluene	10	0	11	114	70-125
trans-1,2-Dichloroethene	10	0	11	108	65-135
trans-1,3-Dichloropropene	10	0	10	100	65-125
trans-1,4-Dichloro-2-butene	10	0	10	102	69-128
Trichloroethene	10	0	11	109	75-125
Trichlorofluoromethane	10	0	9.7	97	25-185
~~Vinyl acetate~~	10	0	0	~~0~~	75-125
Vinyl chloride	10	0	11	114	60-125
Xylenes, Total	30	0	31	104	80-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 84 outside limits

COMMENTS:

FORM III SW8260B

4A

SAMPLE NO.

VOA8 BLK 082911

VOLATILE METHOD BLANK SUMMARY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Lab File ID: 08291115.D Lab Sample ID: VOA8 BLK 082911

Date Analyzed: 8/29/2011 Time Analyzed: 20:10

GC Column: RTX-624 ID: 0.25mm, (mm) Heated Purge: (Y/N) N

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VOA8 LCS 082911	VOA8 LCS 082911	08291113.D	19:15
02	VOA8 LCSD 082911	VOA8 LCSD 082911	08291114.D	19:43
03	A-SO-RIA33-SB02-0	1108481-018C	08291117.D	21:05
04	ZZZZZ	1108666-001C	08291118.D	21:32
05	ZZZZZ	1108666-002C	08291119.D	21:59
06	ZZZZZ	1108666-003A	08291120.D	22:26
07	ZZZZZ	1108666-004A	08291121.D	22:53
08	ZZZZZ	1108666-005A	08291122.D	23:19
09	ZZZZZ	1108666-006A	08291123.D	23:46
10	ZZZZZ	1108666-007A	08291124.D	0:13
11	ZZZZZ	1108666-008A	08291125.D	0:40
12	ZZZZZ	1108825-001A	08291126.D	1:06
13	ZZZZZ	1108825-002A	08291127.D	1:33

COMMENTS: _____

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 082911

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 082911

Sample wt/vol: (g/mL) G Lab File ID: 08291115.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/29/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
630-20-6	1,1,1,2-Tetrachloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
75-34-3	1,1-Dichloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
563-58-6	1,1-Dichloropropene	1	U
87-61-6	1,2,3-Trichlorobenzene	1	U
96-18-4	1,2,3-Trichloropropane	2	U
526-73-8	1,2,3-Trimethylbenzene	1	U
120-82-1	1,2,4-Trichlorobenzene	2	U
95-63-6	1,2,4-Trimethylbenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	2	U
106-93-4	1,2-Dibromoethane	1	U
95-50-1	1,2-Dichlorobenzene	1	U
107-06-2	1,2-Dichloroethane	1	U
78-87-5	1,2-Dichloropropane	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
142-28-9	1,3-Dichloropropane	1	U
106-46-7	1,4-Dichlorobenzene	1	U
594-20-7	2,2-Dichloropropane	1	U
78-93-3	2-Butanone	2.1	J
110-75-8	2-Chloroethyl vinyl ether	2	U
95-49-8	2-Chlorotoluene	1	U
591-78-6	2-Hexanone	5	U
75-65-0	2-Methyl-2-propanol	50	U
91-57-6	2-Methylnaphthalene	5	U
79-46-9	2-Nitropropane	2	U
106-43-4	4-Chlorotoluene	1	U
99-87-6	4-Isopropyltoluene	1	U
108-10-1	4-Methyl-2-pentanone	5	U
67-64-1	Acetone	5	U
107-02-8	Acrolein	5	U

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 082911

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 082911

Sample wt/vol: (g/mL) G Lab File ID: 08291115.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/29/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
107-13-1	Acrylonitrile	2	U
71-43-2	Benzene	0.6	U
108-86-1	Bromobenzene	1	U
74-97-5	Bromochloromethane	1	U
75-27-4	Bromodichloromethane	1	U
75-25-2	Bromoform	1	U
74-83-9	Bromomethane	4	U
75-15-0	Carbon disulfide	2	U
56-23-5	Carbon tetrachloride	1	U
108-90-7	Chlorobenzene	1	U
124-48-1	Chlorodibromomethane	1	U
75-00-3	Chloroethane	5	U
67-66-3	Chloroform	1	U
74-87-3	Chloromethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
98-82-8	Cumene	1	U
110-82-7	Cyclohexane	5	U
74-95-3	Dibromomethane	2	U
75-71-8	Dichlorodifluoromethane	1	U
60-29-7	Diethyl ether	1	U
97-63-2	Ethyl methacrylate	2	U
100-41-4	Ethylbenzene	1	U
87-68-3	Hexachlorobutadiene	1	U
67-72-1	Hexachloroethane	1	U
74-88-4	Iodomethane	2	U
108-20-3	Isopropyl ether	1	U
179601-23-1	m,p-Xylene	2	U
79-20-9	Methyl Acetate	1	U
108-87-2	Methylcyclohexane	1	U
75-09-2	Methylene chloride	2	U
91-20-3	Naphthalene	5	U
104-51-8	n-Butylbenzene	1	U
103-65-1	n-Propylbenzene	1	U
95-47-6	o-Xylene	1	U

Form 1

CLIENT SAMPLE NO.

VOA8 BLK 082911

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Soil Lab Sample ID: VOA8 BLK 082911

Sample wt/vol: (g/mL) G Lab File ID: 08291115.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/29/2011

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.00

Extract Volume: _____ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
135-98-8	sec-Butylbenzene	1	U
100-42-5	Styrene	1	U
994-05-8	tert-Amyl Methyl Ether	2	U
637-92-3	tert-Butyl Ethyl Ether	2	U
1634-04-4	tert-Butyl Methyl Ether	2	U
98-06-6	tert-Butylbenzene	1	U
127-18-4	Tetrachloroethene	1	U
108-88-3	Toluene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
110-57-6	trans-1,4-Dichloro-2-butene	2	U
79-01-6	Trichloroethene	1	U
75-69-4	Trichlorofluoromethane	1	U
108-05-4	Vinyl acetate	25	U
75-01-4	Vinyl chloride	0.8	U
1330-20-7	Xylenes, Total	3	U

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
1,1,1,2-Tetrachloroethane	10	0	10	104	75-125
1,1,1-Trichloroethane	10	0	11	105	70-135
1,1,2,2-Tetrachloroethane	10	0	11	110	55-130
1,1,2-Trichloro-1,2,2-trifluoroethan	10	0	11	108	20-165
1,1,2-Trichloroethane	10	0	10	104	60-125
1,1-Dichloroethane	10	0	10	103	75-125
1,1-Dichloroethene	10	0	11	107	65-135
1,1-Dichloropropene	10	0	11	107	70-135
1,2,3-Trichlorobenzene	10	0	11	106	60-135
1,2,3-Trichloropropane	10	0	10	104	65-130
1,2,3-Trimethylbenzene	10	0	11	105	74-126
1,2,4-Trichlorobenzene	10	0	10	104	65-130
1,2,4-Trimethylbenzene	10	0	11	106	65-135
1,2-Dibromo-3-chloropropane	10	0	9.9	99	40-135
1,2-Dibromoethane	10	0	10	103	70-125
1,2-Dichlorobenzene	10	0	10	105	75-120
1,2-Dichloroethane	10	0	10	104	70-135
1,2-Dichloropropane	10	0	10	103	70-120
1,3,5-Trimethylbenzene	10	0	11	109	65-135
1,3-Dichlorobenzene	10	0	11	112	70-125
1,3-Dichloropropane	10	0	11	106	75-125
1,4-Dichlorobenzene	10	0	11	107	70-125
2,2-Dichloropropane	10	0	9.6	97	65-135
2-Butanone	10	0	12	115	30-160
~~2-Chloroethyl vinyl ether~~	10	0	0	~~0*~~	62-125
2-Chlorotoluene	10	0	11	107	70-130
2-Hexanone	10	0	8.2	82	45-145
2-Methyl-2-propanol	50	0	55	111	70-130
2-Methylnaphthalene	10	0	12	123	57-165
2-Nitropropane	10	0	9.7	97	70-130
4-Chlorotoluene	10	0	11	110	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

FORM III SW8260B

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level:(low/med) LOW

4-Isopropyltoluene	10	0	11	108	75-135
4-Methyl-2-pentanone	10	0	9.6	97	45-145
Acetone	10	0	7.5	75	20-160
Acrylonitrile	10	0	10	103	63-132
Benzene	10	0	11	106	75-125
Bromobenzene	10	0	11	108	65-120
Bromochloromethane	10	0	10	104	70-125
Bromodichloromethane	10	0	9.9	99	70-130
Bromoform	10	0	10	103	55-135
Bromomethane	10	0	11	113	30-160
Carbon disulfide	10	0	11	106	45-160
Carbon tetrachloride	10	0	10	104	65-135
Chlorobenzene	10	0	11	106	75-125
Chlorodibromomethane	10	0	10	102	65-130
Chloroethane	10	0	12	118	40-155
Chloroform	10	0	10	102	70-125
Chloromethane	10	0	10	101	50-130
cis-1,2-Dichloroethene	10	0	10	104	65-125
cis-1,3-Dichloropropene	10	0	9.6	96	70-125
Cumene	10	0	11	108	75-130
Cyclohexane	10	0	11	106	75-130
Dibromomethane	10	0	10	104	75-130
Dichlorodifluoromethane	10	0	12	116	35-135
Diethyl ether	10	0	11	110	66-133
Ethyl methacrylate	10	0	11	107	67-133
Ethylbenzene	10	0	11	108	75-125
Hexachlorobutadiene	10	0	11	110	55-140
Hexachloroethane	10	0	10	103	66-117
Iodomethane	10	0	8.9	89	10-171
Isopropyl ether	10	0	11	106	68-139
m,p-Xylene	20	0	21	107	80-125
Methyl Acetate	10	0	10	104	75-130
Methylene chloride	10	0	4	40*	55-140
Naphthalene	10	0	11	112	40-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

FORM III SW8260B

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level: (low/med) LOW

n-Butylbenzene	10	0	10	104	65-140
n-Propylbenzene	10	0	12	115	65-135
o-Xylene	10	0	11	107	75-125
sec-Butylbenzene	10	0	11	112	65-130
Styrene	10	0	11	115	75-125
tert-Amyl Methyl Ether	10	0	10	102	70-130
tert-Butyl Ethyl Ether	10	0	11	105	66-136
tert-Butyl Methyl Ether	20	0	20	102	63-136
tert-Butylbenzene	10	0	11	109	65-130
Tetrachloroethene	10	0	11	110	65-140
Toluene	10	0	11	109	70-125
trans-1,2-Dichloroethene	10	0	11	107	65-135
trans-1,3-Dichloropropene	10	0	10	104	65-125
trans-1,4-Dichloro-2-butene	10	0	10	100	69-128
Trichloroethene	10	0	11	107	75-125
Trichlorofluoromethane	10	0	9.7	97	25-185
~~Vinyl acetate~~	10	0	0	~~0*~~	75-130
Vinyl chloride	10	0	11	114	60-125
Xylenes, Total	30	0	32	107	80-125

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1,1,2-Tetrachloroethane	10	10	104	1	25	75-125
1,1,1-Trichloroethane	10	10	102	4	25	70-135
1,1,2,2-Tetrachloroethane	10	10	100	9	25	55-130
1,1,2-Trichloro-1,2,2-trifluoroethan	10	11	107	1	25	20-165
1,1,2-Trichloroethane	10	11	106	2	25	60-125
1,1-Dichloroethane	10	10	102	1	25	75-125
1,1-Dichloroethene	10	11	108	1	25	65-135
1,1-Dichloropropene	10	11	105	2	25	70-135
1,2,3-Trichlorobenzene	10	9.9	99	7	25	60-135
1,2,3-Trichloropropane	10	10	101	3	25	65-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

FORM III SW8260B

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level:(low/med) LOW

1,2,3-Trimethylbenzene	10	10	103	3	25	74-126
1,2,4-Trichlorobenzene	10	10	103	1	25	65-130
1,2,4-Trimethylbenzene	10	10	105	1	25	65-135
1,2-Dibromo-3-chloropropane	10	8.7	87	13	25	40-135
1,2-Dibromoethane	10	10	102	1	25	70-125
1,2-Dichlorobenzene	10	9.8	98	7	25	75-120
1,2-Dichloroethane	10	10	103	1	25	70-135
1,2-Dichloropropane	10	10	101	2	25	70-120
1,3,5-Trimethylbenzene	10	10	104	5	25	65-135
1,3-Dichlorobenzene	10	10	105	6	25	70-125
1,3-Dichloropropane	10	10	103	2	25	75-125
1,4-Dichlorobenzene	10	10	104	3	25	70-125
2,2-Dichloropropane	10	10	104	7	25	65-135
2-Butanone	10	11	107	8	25	30-160
~~2-Chloroethyl vinyl ether~~	10	0	~~0~~	0	25	62-125
2-Chlorotoluene	10	10	104	3	25	70-130
2-Hexanone	10	7.3	73	11	25	45-145
2-Methyl-2-propanol	50	52	103	7	25	70-130
2-Methylnaphthalene	10	10	104	17	25	57-165
2-Nitropropane	10	10	101	4	25	70-130
4-Chlorotoluene	10	11	110	1	25	75-125
4-Isopropyltoluene	10	10	104	4	25	75-135
4-Methyl-2-pentanone	10	9.9	99	2	25	45-145
Acetone	10	6.3	63	17	25	20-160
Acrylonitrile	10	9.7	97	5	25	63-132
Benzene	10	11	105	1	25	75-125
Bromobenzene	10	10	103	4	25	65-120
Bromochloromethane	10	10	104	0	25	70-125
Bromodichloromethane	10	9.8	98	1	25	70-130
Bromoform	10	9.6	96	7	25	55-135
Bromomethane	10	12	116	3	25	30-160
Carbon disulfide	10	11	106	0	25	45-160
Carbon tetrachloride	10	10	105	1	25	65-135
Chlorobenzene	10	10	104	2	25	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level: (low/med) LOW

				RPD		
Chlorodibromomethane	10	9.7	97	6	25	65-130
Chloroethane	10	11	114	3	25	40-155
Chloroform	10	10	101	1	25	70-125
Chloromethane	10	11	107	6	25	50-130
cis-1,2-Dichloroethene	10	10	104	0	25	65-125
cis-1,3-Dichloropropene	10	10	104	7	25	70-125
Cumene	10	11	106	2	25	75-130
Cyclohexane	10	10	104	2	25	75-130
Dibromomethane	10	10	102	1	25	75-130
Dichlorodifluoromethane	10	12	118	2	25	35-135
Diethyl ether	10	11	110	1	25	66-133
Ethyl methacrylate	10	10	103	4	25	67-133
Ethylbenzene	10	11	107	0	25	75-125
Hexachlorobutadiene	10	10	103	7	25	55-140
Hexachloroethane	10	9.4	94	9	25	66-117
Iodomethane	10	8.8	88	1	25	10-171
Isopropyl ether	10	10	105	1	25	68-139
m,p-Xylene	20	21	105	2	25	80-125
Methyl Acetate	10	11	110	6	25	75-130
Methylene chloride	10	8.5	85	72*	25	55-140
Naphthalene	10	9.9	99	12	25	40-125
n-Butylbenzene	10	10	102	2	25	65-140
n-Propylbenzene	10	11	110	5	25	65-135
o-Xylene	10	10	103	4	25	75-125
sec-Butylbenzene	10	11	106	5	25	65-130
Styrene	10	11	110	4	25	75-125
tert-Amyl Methyl Ether	10	10	103	0	25	70-130
tert-Butyl Ethyl Ether	10	10	102	3	25	66-136
tert-Butyl Methyl Ether	20	20	101	1	25	63-136
tert-Butylbenzene	10	10	104	5	25	65-130
Tetrachloroethene	10	11	108	2	25	65-140
Toluene	10	11	109	0	25	70-125
trans-1,2-Dichloroethene	10	11	107	0	25	65-135
trans-1,3-Dichloropropene	10	10	104	1	25	65-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

FORM III SW8260B

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: Blank Spike Level: (low/med) LOW

trans-1,4-Dichloro-2-butene	10	9.8	98	2	25	69-128
Trichloroethene	10	10	104	4	25	75-125
Trichlorofluoromethane	10	9.7	97	0	25	25-185
Vinyl acetate	10	0	0	0	25	75-130
Vinyl chloride	10	11	114	0	25	60-125
Xylenes, Total	30	31	104	2	25	80-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 84 outside limits

Spike Recovery: 5 out of 168 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
1,1,1,2-Tetrachloroethane	7.1	0	5.7	80	75-125
1,1,1-Trichloroethane	7.1	4.8	10	76	70-135
1,1,2,2-Tetrachloroethane	7.1	0	6.4	89	55-130
1,1,2-Trichloro-1,2,2-trifluoroethan	7.1	0	6.6	92	20-165
1,1,2-Trichloroethane	7.1	0	5.3	75	60-125
1,1-Dichloroethane	7.1	3	9.3	87	75-125
1,1-Dichloroethene	7.1	0	6.1	86	65-135
1,1-Dichloropropene	7.1	0	5.5	77	70-135
1,2,3-Trichlorobenzene	7.1	0	1	14*	60-135
1,2,3-Trichloropropane	7.1	0	4.4	62*	65-130
1,2,3-Trimethylbenzene	7.1	0	4.7	66*	74-126
1,2,4-Trichlorobenzene	7.1	0	0.76	11*	65-130
1,2,4-Trimethylbenzene	7.1	0	4.1	57*	65-135
1,2-Dibromo-3-chloropropane	7.1	0	4.4	62	40-135
1,2-Dibromoethane	7.1	0	3.4	48*	70-125
1,2-Dichlorobenzene	7.1	0	2.1	29*	75-120
1,2-Dichloroethane	7.1	0	5	71	70-135
1,2-Dichloropropane	7.1	0	6.2	87	70-120
1,3,5-Trimethylbenzene	7.1	0	4.8	68	65-135
1,3-Dichlorobenzene	7.1	0	1.8	26*	70-125
1,3-Dichloropropane	7.1	0	4.5	64*	75-125
1,4-Dichlorobenzene	7.1	0	1.7	23*	70-125
2,2-Dichloropropane	7.1	0	6.3	88	65-135
2-Butanone	7.1	0	6.9	98	30-160
2-Chloroethyl vinyl ether	7.1	0	0	0*	62-125
2-Chlorotoluene	7.1	0	3.8	53*	70-130
2-Hexanone	7.1	0	4.7	66	45-145
2-Methyl-2-propanol	36	0	72	202*	70-130
2-Methylnaphthalene	7.1	0	0	0*	57-165
2-Nitropropane	7.1	0	7.2	101	70-130
4-Chlorotoluene	7.1	0	2.4	34*	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

FORM III SW8260B

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level: (low/med) LOW

4-Isopropyltoluene	7.1	0	4.4	62*	75-135
4-Methyl-2-pentanone	7.1	0	7.9	112	45-145
Acetone	7.1	9.2	14	67	20-160
Acrylonitrile	7.1	0	7.3	103	63-132
Benzene	7.1	0	5.8	81	75-125
Bromobenzene	7.1	0	2.7	38*	65-120
Bromochloromethane	7.1	0	5.3	74	70-125
Bromodichloromethane	7.1	0	4.8	67*	70-130
Bromoform	7.1	0	4.3	61	55-135
Bromomethane	7.1	0	6.2	87	30-160
Carbon disulfide	7.1	0	5.7	80	45-160
Carbon tetrachloride	7.1	0	6.7	93	65-135
Chlorobenzene	7.1	0	3.6	51*	75-125
Chlorodibromomethane	7.1	0	4.7	67	65-130
Chloroethane	7.1	0	6.8	96	40-155
Chloroform	7.1	0	5.9	82	70-125
Chloromethane	7.1	0	6.1	85	50-130
cis-1,2-Dichloroethene	7.1	0	5.4	75	65-125
cis-1,3-Dichloropropene	7.1	0	3.7	51*	70-125
Cumene	7.1	0	5	71	75-130
Cyclohexane	7.1	0	6.8	96	75-130
Dibromomethane	7.1	0	4.5	63*	75-130
Dichlorodifluoromethane	7.1	0	6.2	88	35-135
Diethyl ether	7.1	0	6.6	92	66-133
Ethyl methacrylate	7.1	0	4.8	67	67-133
Ethylbenzene	7.1	0	4.5	63*	75-125
Hexachlorobutadiene	7.1	0	5.1	72	55-140
Hexachloroethane	7.1	0	5.8	81	66-117
Iodomethane	7.1	0	6.4	90	10-171
Isopropyl ether	7.1	0	6.6	92	68-139
m,p-Xylene	14	0	8.6	60*	80-125
Methyl Acetate	7.1	0	0	0*	75-130
Methylene chloride	7.1	0	0	0*	55-140
Naphthalene	7.1	0	1.4	20*	40-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level:(low/med) LOW

n-Butylbenzene	7.1	0	3	42*	65-140
n-Propylbenzene	7.1	0	4	58*	65-135
o-Xylene	7.1	0	4.8	67*	75-125
sec-Butylbenzene	7.1	0	5.1	71	65-130
Styrene	7.1	0	3.1	43*	75-125
tert-Amyl Methyl Ether	7.1	0	7.3	103	70-130
tert-Butyl Ethyl Ether	7.1	0	7.1	99	66-136
tert-Butyl Methyl Ether	14	0	16	111	63-136
tert-Butylbenzene	7.1	0	5.6	78	65-130
Tetrachloroethene	7.1	0	5.2	72	65-140
Toluene	7.1	0	5.2	73	70-125
trans-1,2-Dichloroethene	7.1	0	5.7	80	65-135
trans-1,3-Dichloropropene	7.1	0	2.4	34*	65-125
trans-1,4-Dichloro-2-butene	7.1	0	2	28*	69-128
Trichloroethene	7.1	7.1	13	84	75-125
Trichlorofluoromethane	7.1	0	5.8	82	25-185
Vinyl acetate	7.1	0	0	0*	75-130
Vinyl chloride	7.1	0	6.9	97	60-125
Xylenes, Total	21	0	13	62*	80-125

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1,1,2-Tetrachloroethane	7	5.6	80	2	25	75-125
1,1,1-Trichloroethane	7	11	92	9	25	70-135
1,1,2,2-Tetrachloroethane	7	5	71	24	25	55-130
1,1,2-Trichloro-1,2,2-trifluoroethan	7	6.1	87	7	25	20-165
1,1,2-Trichloroethane	7	4.5	64	17	25	60-125
1,1-Dichloroethane	7	9.5	92	2	25	75-125
1,1-Dichloroethene	7	5.8	83	5	25	65-135
1,1-Dichloropropene	7	4.8	66*	15	25	70-135
1,2,3-Trichlorobenzene	7	0.62	9*	48	25	60-135
1,2,3-Trichloropropane	7	3.1	44*	34*	25	65-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level: (low/med) LOW

1,2,3-Trimethylbenzene	7	3.5	50*	28*	25	74-126
1,2,4-Trichlorobenzene	7	0.45	6*	52	25	65-130
1,2,4-Trimethylbenzene	7	2.8	39*	36*	25	65-135
1,2-Dibromo-3-chloropropane	7	3.3	46	30*	25	40-135
1,2-Dibromoethane	7	2.4	35*	33*	25	70-125
1,2-Dichlorobenzene	7	1.2	18*	50*	25	75-120
1,2-Dichloroethane	7	4.1	59*	20	25	70-135
1,2-Dichloropropane	7	7.1	101	13	25	70-120
1,3,5-Trimethylbenzene	7	4	57*	18	25	65-135
1,3-Dichlorobenzene	7	1.1	15*	52*	25	70-125
1,3-Dichloropropane	7	3.4	40*	27*	25	75-125
1,4-Dichlorobenzene	7	0.95	14*	54*	25	70-125
2,2-Dichloropropane	7	6.2	88	2	25	65-135
2-Butanone	7	6.1	87	13	25	30-160
2-Chloroethyl vinyl ether	7	0	0*	0	25	62-125
2-Chlorotoluene	7	2.5	36*	40*	25	70-130
2-Hexanone	7	3.6	51	26*	25	45-145
2-Methyl-2-propanol	35	90	256*	22	25	70-130
2-Methylnaphthalene	7	0	0*	0	25	57-165
2-Nitropropane	7	7	99	4	25	70-130
4-Chlorotoluene	7	1.4	29*	32*	25	75-125
4-Isopropyltoluene	7	3.4	49*	25	25	75-135
4-Methyl-2-pentanone	7	7.1	101	11	25	45-145
Acetone	7	18	127	26	25	20-160
Acrylonitrile	7	6.6	94	10	25	63-132
Benzene	7	5.2	74*	10	25	75-125
Bromobenzene	7	1.6	23*	53*	25	65-120
Bromochloromethane	7	4.4	62*	18	25	70-125
Bromodichloromethane	7	5	70	4	25	70-130
Bromoform	7	3.1	44*	33*	25	55-135
Bromomethane	7	6.3	90	2	25	30-160
Carbon disulfide	7	4.8	68	17	25	45-160
Carbon tetrachloride	7	6.2	89	6	25	65-135
Chlorobenzene	7	2.4	35*	40*	25	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level: (low/med) LOW

Chlorodibromomethane	7	3.8	54*	22	25	65-130
Chloroethane	7	6.4	92	6	25	40-155
Chloroform	7	5.3	76	9	25	70-125
Chloromethane	7	6.2	88	2	25	50-130
cis-1,2-Dichloroethene	7	4.4	62*	21	25	65-125
cis-1,3-Dichloropropene	7	2.4	35*	40*	25	70-125
Cumene	7	4.2	60*	17	25	75-130
Cyclohexane	7	6.9	98	0	25	75-130
Dibromomethane	7	4	57*	13	25	75-130
Dichlorodifluoromethane	7	6.5	92	4	25	35-135
Diethyl ether	7	6	85	10	25	66-133
Ethyl methacrylate	7	3.5	50*	30*	25	67-133
Ethylbenzene	7	3.3	47*	30*	25	75-125
Hexachlorobutadiene	7	4.4	62	16	25	55-140
Hexachloroethane	7	5.8	83	1	25	66-117
Iodomethane	7	5.8	82	11	25	10-171
Isopropyl ether	7	6.4	91	3	25	68-139
m,p-Xylene	14	6.1	44*	33*	25	80-125
Methyl Acetate	7	0	0*	0	25	75-130
Methylene chloride	7	0	0*	0	25	55-140
Naphthalene	7	0.95	14*	38	25	40-125
n-Butylbenzene	7	2	28*	42*	25	65-140
n-Propylbenzene	7	2.7	38*	40*	25	65-135
o-Xylene	7	3.8	54*	24	25	75-125
sec-Butylbenzene	7	4.4	62*	15	25	65-130
Styrene	7	1.8	25*	53*	25	75-125
tert-Amyl Methyl Ether	7	7.1	101	4	25	70-130
tert-Butyl Ethyl Ether	7	6.9	98	3	25	66-136
tert-Butyl Methyl Ether	14	15	110	2	25	63-136
tert-Butylbenzene	7	5.4	77	3	25	65-130
Tetrachloroethene	7	4.6	65	12	25	65-140
Toluene	7	4.3	61*	19	25	70-125
trans-1,2-Dichloroethene	7	4.5	64*	24	25	65-135
trans-1,3-Dichloropropene	7	1.7	24*	37*	25	65-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

FORM III SW8260B

3

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: -SO-RIA33-SB10-0 Level:(low/med) LOW

			%	RPD		
~~trans-1,4-Dichloro-2-butene~~	7	1.2	~~47*~~	50	25	69-128
Trichloroethene	7	16	122	18	25	75-125
Trichlorofluoromethane	7	5.8	83	0	25	25-185
~~Vinyl acetate~~	7	0	~~0*~~	0	25	75-130
Vinyl chloride	7	6.5	93	6	25	60-125
Xylenes, Total	21	9.9	47*	30*	25	80-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 24 out of 84 outside limits

Spike Recovery: 81 out of 168 outside limits

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108481

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (4BF) #	SMC2 (DFM) #	SMC3 (TOL) #						TOT OUT
01	VOA8 LCS 081911A	92	84 *	93						1
02	VOA8 BLK 081911A	96	82 *	91						1
03	IOA-SO-TB01-081511	98	88	91						0
04	IOA-SO-RIA33-SB10-	110	83 *	74 *						2
05	IOA-SO-RIA33-SB10-	98	90	92						0
06	IOA-SO-RIA33-SB10-	92	92	96						0
07	IOA-SO-RIA33-SB04-	97	93	90						0
08	IOA-SO-RIA33-SB08-	99	92	94						0
09	IOA-SO-DUP05-08151	99	88	94						0
10	IOA-SO-RIA33-SB14-	98	90	96						0
11	VOA8 LCS 082911	92	85	89						0
12	VOA8 LCSD 082911	91	85 *	92						1
13	VOA8 BLK 082911	91	89	95						0
14	IOA-SO-RIA33-SB02-	95	90	88						0

			QC Limit
SMC 1	(4BF)	= 4-Bromofluorobenzene	90.5-116
SMC 2	(4BF)	= 4-Bromofluorobenzene	85-120
SMC 3	(DFM)	= Dibromofluoromethane	85-115
SMC 4	(TOL)	= Toluene-d8	87.2-110
SMC 5	(TOL)	= Toluene-d8	85-115

Column to be used to flag recovery values

* Values outside of contract required QC limits

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\081911ACOE\08191111.D
Tune Time : 19 Aug 2011 4:54 pm

Daily Calibration File : C:\HPCHEM\1\DATA\081911\08191107.D

				194712	347554	431657
				215317		
File	Sample	Surrogate Recovery %		Internal Standard Responses		
08191112.D	VOA8 CCV	83* 92 96	216921	200221	352064	432715
08191113.D	VOA8 LCS	84* 93 92	216338	207161	356732	450069
08191114.D	VOA8 BLK	82* 91 96	220700	200951	350259	435475
08191115.D	VOA8 RLV	82* 91 98	219800	201817	350690	435070
08191116.D	1108481-	88 91 98	209235	183657	330160	418068
08191117.D	1108481-	83* 74* 110	69595*	72397*	126260*	123616*
08191118.D	1108481-	90 92 98	207376	200503	350845	436715
08191119.D	1108481-	92 96 92	197917	191651	342170	438313
08191120.D	1108479-	88 93 95	213384	196647	346125	439255
08191121.D	1108479-	90 91 99	210232	192234	345037	426283
08191122.D	1108481-	93 90 97	227104	198472	361065	462040
08191123.D	1108481-	92 94 99	229755	194422	354852	457988
08191124.D	1108481-	88 94 99	230292	198172	359005	461089
08191125.D	1108481-	90 96 98	231277	193848	350654	458370
08191126.D	1108481-	91 75* 102	63008*	54371*	96994*	120128*
08191127.D	1108552-	96 99 97	227393	186420	339904	461766
08191128.D	1108552-	94 99 100	233547	190341	344531	456223
08191129.D	1108552-	94 95 100	230765	195563	352631	454916
08191130.D	1108552-	94 95 98	212654	188067	343695	438353

16C

SB10-0305

08191131.D	1108552-	86	95	98	204861	359221	457346
				225827			
08191132.D	1108552-	96	92	101	196874	357080	454193
				227582			
08191133.D	VOA8 RLV	94	92	97	190043	350725	440442
				217146			

t - fails 12hr time check * - fails criteria

Created: Tue Oct 04 12:48:47 2011 VOA 8

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\082911LL\08291111.D
Tune Time : 29 Aug 2011 6:20 pm

Daily Calibration File : C:\HPCHEM\1\DATA\082911\08291107.D

File	Sample	Surrogate Recovery %			Internal Standard Responses		
					240296	412876	438504
					198230		
08291112.D	VOA8 CCV	87	84*	94	257061	423523	448427
				202696			
08291113.D	VOA8 LCS	85	89	92	251610	422823	446759
				205579			
08291114.D	VOA8 LCS	85*	92	91	248856	424838	452851
				206723			
08291115.D	VOA8 BLK	89	95	91	249639	420206	457639
				215560			
08291116.D	VOA8 RLV	87	92	91	245602	414078	449579
				202017			
08291117.D	1108481-	90	88	95	252597	430196	467947
				215164			
08291118.D	1108666-	89	82*	96	257687	440119	468498
				219581			
08291119.D	1108666-	90	82*	94	252161	435342	462556
				218570			
08291120.D	1108666-	89	87*	96	251792	436768	472035
				221314			
08291121.D	1108666-	93	89	93	247949	430864	468891
				218490			
08291122.D	1108666-	94	96	93	248623	426658	469870
				216999			
08291123.D	1108666-	91	99	94	245769	417698	471239
				212315			
08291124.D	1108666-	93	100	92	241183	413492	468321
				206483			
08291125.D	1108666-	93	92	98	247330	430648	457688
				213444			
08291126.D	1108825-	94	81*	93	248767	429375	460635
				208158			
08291127.D	1108825-	96	86*	97	246091	426582	461858
				211836			
08291128.D	1108825-	40*	88	148*	167675	392653	344953
				176504			
08291129.D	1108825-	81*	180*	271*	40305*	311488	261465
				116521			
08291130.D	1108825-	65*	87	95	244400	407202	420188
				197307			
08291131.D	1108825-	65*	92	134*	53282*	307789	290072
				116469			
08291132.D	1108825-	82*	89	90*	243095	385481	406702
				197032			
08291133.D	1108825-	83*	95	88*	228433	357875	402233

INST. SVOC 5

PAH

Injection Log

Directory: C:\HPCHEM\2\DATA\100711

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	10071101.d	1.	TUNE1 S5 092711	TUNE DFTPP_TUNE	7 Oct 2011 09:30
2	77	10071102.d	1.	1ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 11:18
3	78	10071103.d	1.	2.5ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 11:41
4	79	10071104.d	1.	5ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 12:05
5	80	10071105.d	1.	10ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 12:28
6	81	10071106.d	1.	15ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 12:52
7	82	10071107.d	1.	20ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 13:15
8	83	10071108.d	1.	25ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 13:39
9	84	10071109.d	1.	50ug/mL S5 100711	ICAL SW_8270A	7 Oct 2011 14:03
10	85	10071110.d	1.	ICV S5 100711	ICAL SW_8270A	7 Oct 2011 14:33
11	86	10071111.d	1.	RLVS1 S5 100711	TUNE DFTPP_TUNE	7 Oct 2011 15:45
12	87	10071112.d	1.	MB-23545	MBLK SW_8270S	7 Oct 2011 16:09
13	88	10071113.d	1.	LCS-23545	LCS SW_8270S	7 Oct 2011 16:32
14	89	10071114.d	1.	LCSD-23545	LCSD SW_8270S	7 Oct 2011 17:01
15	90	10071115.d	50.	1108257-006A	SAMP SW_8270S	7 Oct 2011 17:24
16	91	10071116.d	20.	1109174-001B	SAMP SW_8270S	7 Oct 2011 17:48
17	92	10071117.d	1.	1108481-013A	SAMP SW_8270S	7 Oct 2011 18:11
18	93	10071118.d	1.	1108481-014A	SAMP SW_8270S	7 Oct 2011 18:35
19	94	10071119.d	1.	1108481-015A	SAMP SW_8270S	7 Oct 2011 18:58
20	95	10071120.d	1.	1108481-016A	SAMP SW_8270S	7 Oct 2011 19:22
21	96	10071121.d	1.	1108481-017A	SAMP SW_8270S	7 Oct 2011 19:46
22	97	10071122.d	1.	1108481-018A	SAMP SW_8270S	7 Oct 2011 20:09
23	98	10071123.d	1.	1109068-001D	SAMP SW_8270S	7 Oct 2011 20:33
24	86	10071124.d	1.	RLVS2 S5 100711	RLVS SW_8270S	7 Oct 2011 20:56

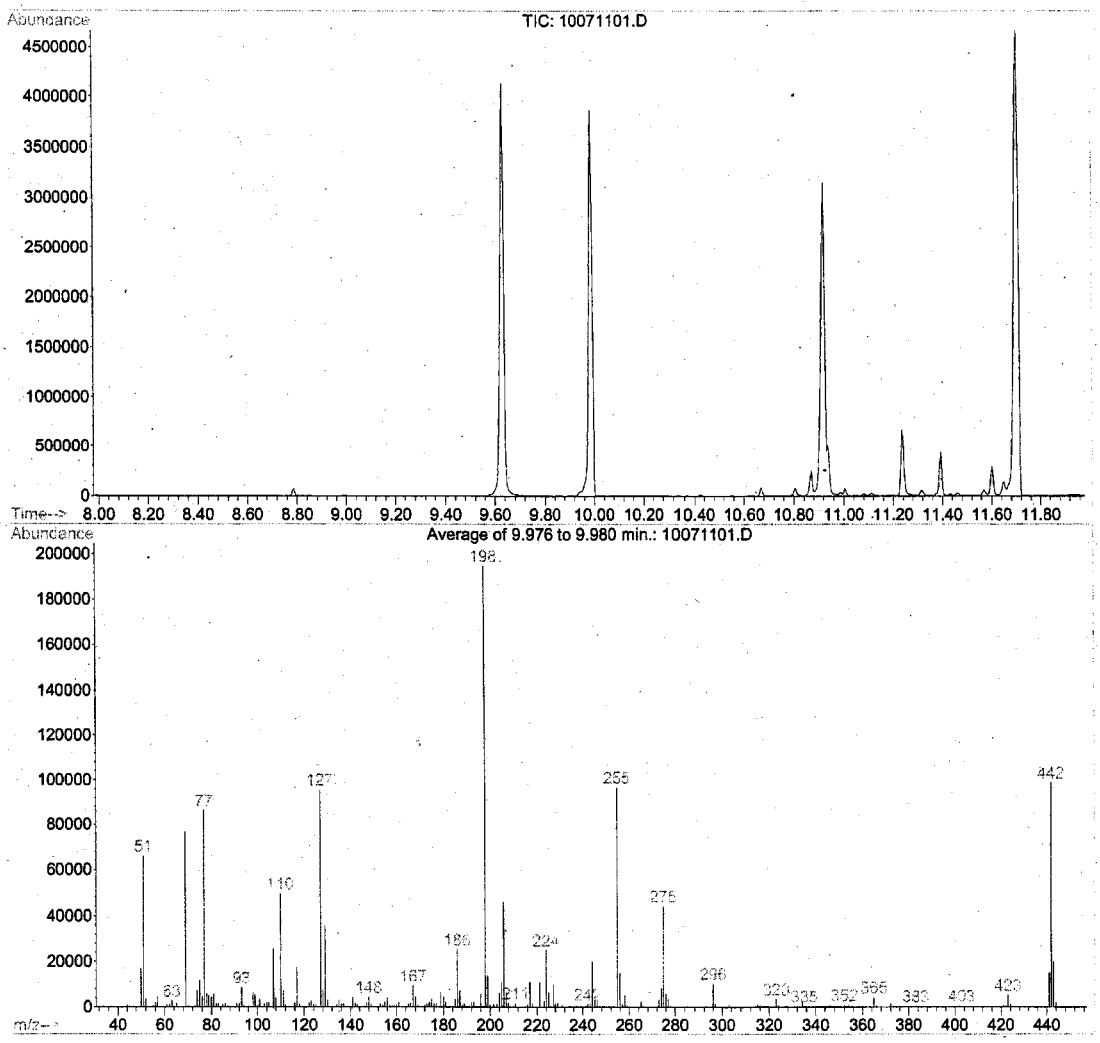
CAL

6

DFTPP

Data File : C:\HPCHEM\2\DATA\100711\10071101.D
Acq On : 7 Oct 2011 9:30 am
Sample : TUNE1 S5 092711
Misc : TUNE DFTPP TUNE
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS

Vial: 76
Operator: Michael Truchan
Inst : SVOC 5
Multiplr: 1.00



Spectrum Information: Average of 9.976 to 9.980 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	33.9	66132	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.4	285	PASS
127	198	40	60	49.1	95704	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	194932	PASS
199	198	5	9	7.1	13792	PASS
275	198	10	30	22.7	44208	PASS
365	198	1	100	2.2	4329	PASS
441	443	0.01	100	76.3	15331	PASS
442	198	40	100	50.7	98740	PASS
443	442	17	23	20.3	20081	PASS

10071101.D 100711S5.M Tue Nov 08 15:31:53 2011

Response Factor Report SVOC 5

Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Tue Nov 08 15:07:47 2011
Response via : Initial Calibration

Calibration Files
1 =10071102.D 2.5 =10071103.D 5 =10071104.D
10 =10071105.D 15 =10071106.D 20 =10071107.D

		Compound	1	2.5	5	10	15	20	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------			ISTD				
2)	T	N-Nitrosodimethylam	0.962	0.929	0.955	0.976	0.967	0.969	0.959	1.47
3)	T	Pyridine	1.526	1.532	1.563	1.570	1.524	1.508	1.503	4.91
4)	S	2-Fluorophenol	1.511	1.543	1.553	1.578	1.564	1.546	1.524	3.63
5)	T	N-Nitrosodiethylami	0.771	0.774	0.788	0.801	0.798	0.806	0.786	1.85
6)	S	Phenol-d5	1.769	1.842	1.887	1.909	1.865	1.874	1.830	3.79
7)	T,P	Phenol	1.843	1.899	1.933	1.939	1.871	1.849	1.846	5.02
8)	T	Aniline	2.344	2.323	2.357	2.457	2.453	2.463	2.395	2.51
9)	T,P	bis(2-Chloroethyl)	1.546	1.581	1.578	1.562	1.474	1.427	1.475	7.71
10)	T	n-Decane	1.666	1.683	1.701	1.648	1.552	1.495	1.549	10.76
11)	T,P	2-Chlorophenol	1.575	1.653	1.671	1.671	1.616	1.597	1.592	5.10
12)	T	1,3-Dichlorobenzene	1.833	1.841	1.863	1.836	1.765	1.721	1.747	7.72
13)	T	1,4-Dichlorobenzene	1.850	1.836	1.834	1.776	1.696	1.652	1.698	9.83
14)	T	Benzyl alcohol	0.945	1.004	1.034	1.049	0.972	0.977	0.986	4.00
15)	T	1,2-Dichlorobenzene	1.772	1.778	1.775	1.724	1.657	1.617	1.650	9.42
16)	T,P	2-Methylphenol	1.319	1.342	1.309	1.275	1.226	1.214	1.258	4.91
17)	T	bis(2-Chloroisoprop	1.641	1.633	1.634	1.614	1.549	1.527	1.534	9.20
18)	T,P	4-Methylphenol	1.567	1.583	1.489	1.324	1.152	1.079	1.308	19.04
19)	T,P	N-Nitrosodipropylam	1.015	1.021	0.963	0.915	0.852	0.822	0.866	16.86
20)	T	o-Toluidine	2.475	2.486	2.427	2.362	2.242	2.194	2.254	12.91
21)	T,P	Hexachloroethane	0.655	0.665	0.663	0.645	0.623	0.611	0.622	7.60
22)	I	Naphthalene-d8	----------			ISTD				
23)	S	Nitrobenzene-d5	0.428	0.449	0.457	0.458	0.444	0.440	0.438	4.30
24)	T,P	Nitrobenzene	0.437	0.453	0.452	0.453	0.431	0.426	0.429	6.28
25)	T,P	Isophorone	0.855	0.866	0.870	0.869	0.847	0.833	0.841	3.74
26)	T,P	2-Nitrophenol	0.214	0.278	0.322	0.252	0.254	0.252	0.257	12.25
27)	T,P	2,4-Dimethylphenol	0.448	0.447	0.439	0.434	0.395	0.381	0.403	11.69
28)	T	Benzoic acid				0.242	0.262	0.271	0.266	5.51
29)	T,P	bis(2-Chloroethoxy)	0.530	0.540	0.540	0.528	0.512	0.495	0.507	7.53
30)	T,P	2,4-Dichlorophenol	0.385	0.410	0.418	0.415	0.399	0.390	0.388	8.70
31)	T	1,2,4-Trichlorobenz	0.450	0.466	0.465	0.458	0.432	0.417	0.429	9.42
32)	T	4-Chlorophenol							1.098	0.00
33)	T,P	Naphthalene	1.390	1.392	1.369	1.306	1.214	1.160	1.233	13.31
34)	T,P	4-Chloroaniline		0.465	0.441	0.510	0.500	0.494	0.464	10.06
35)	T	2,6-Dichlorophenol	0.373	0.388	0.391	0.383	0.363	0.347	0.356	10.87
36)	T,P	Hexachlorobutadiene	0.235	0.242	0.244	0.237	0.226	0.217	0.224	9.60
37)	T,P	4-Chloro-3-methylph	0.351	0.377	0.378	0.381	0.365	0.355	0.359	5.59
38)	T,P	2-Methylnaphthalene	0.975	0.996	0.989	0.943	0.872	0.832	0.881	13.48
39)	I	Acenaphthene-d10	----------			ISTD				
40)	T,P	Hexachlorocyclopent		0.361	0.365	0.316	0.306	0.300	0.313	12.51
41)	T,P	1,2,4,5-Tetrachloro	0.772	0.784	0.780	0.735	0.688	0.661	0.695	13.16
42)	T,P	2,4,6-Trichlorophen	0.488	0.528	0.518	0.507	0.481	0.474	0.486	6.65
43)	T,P	2,4,5-Trichlorophen	0.492	0.529	0.552	0.521	0.484	0.473	0.485	10.92
44)	S	2-Fluorobiphenyl	1.924	1.955	1.907	1.810	1.660	1.592	1.697	14.76
45)	T,P	2-Chloronaphthalene	2.031	2.048	1.973	1.924	1.675	1.725	1.800	12.44
46)	T,P	1-Chloronaphthalene	1.383	1.354	1.409	1.248	1.251	1.074	1.184	~~19.90~~
47)	T,P	2-Nitroaniline			0.528	0.534	0.523	0.525	0.516	3.99
48)	T,P	Dimethyl phthalate	1.791	1.810	1.765	1.732	1.638	1.613	1.674	7.10
49)	T,P	2,6-Dinitrotoluene		0.392	0.412	0.410	0.399	0.396	0.387	7.79
50)	T,P	Acenaphthylene	2.568	2.653	2.584	2.447	2.279	2.169	2.303	14.22
51)	T,P	3-Nitroaniline		0.326	0.273	0.334	0.353	0.374	0.345	10.85
52)	T,P	Acenaphthene	1.501	1.512	1.481	1.385	1.271	1.220	1.310	14.90
53)	T,P	2,4-Dinitrophenol			0.087	0.087	0.093	0.106	0.108	~~24.46~~
54)	T,P	4-Nitrophenol	0.169	0.212	0.224	0.219	0.220	0.221	0.210	9.14
55)	T	Pentachlorobenzene	0.640	0.665	0.646	0.613	0.574	0.559	0.591	10.17
56)	T,P	2,4-Dinitrotoluene		0.460	0.482	0.471	0.451	0.454	0.447	8.47
57)	T,P	Dibenzofuran	2.279	2.279	2.225	2.129	1.968	1.876	1.976	~~16.80~~
58)	T,P	2,3,4,6-Tetrachloro		0.385	0.405	0.407	0.386	0.380	0.377	8.35
59)	T,P	Diethyl phthalate	1.682	1.723	1.677	1.646	1.564	1.515	1.567	9.51
60)	T,P	4-Chlorophenyl phen	0.867	0.884	0.870	0.833	0.774	0.741	0.779	13.96
61)	T,P	Fluorene	1.813	1.825	1.729	1.579	1.421	1.337	1.500	18.88
62)	T,P	4-Nitroaniline	0.314	0.366	0.325	0.331	0.344	0.345	0.330	7.74

→ <20% ok

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report SVOC 5

Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Tue Nov 08 15:07:47 2011
Response via : Initial Calibration

Calibration Files
1 =10071102.D 2.5 =10071103.D 5 =10071104.D
10 =10071105.D 15 =10071106.D 20 =10071107.D

		Compound	1	2.5	5	10	15	20	Avg	%RSD
63)	S	2,4,6-Tribromopheno		0.217	0.226	0.226	0.219	0.220	0.218	3.08
64)	I	Phenanthrene-d10	ISTD							
65)	T,P	4,6-Dinitro-2-methy			0.121	0.112	0.117	0.127	0.122	5.87
66)	T,P	N-Nitrosodiphenylam	1.735	1.753	1.662	1.490	1.351	1.260	1.431	19.26
67)	T	Azobenzene	0.981	0.977	0.979	0.932	0.870	0.821	0.885	10.80
68)	T,P	4-Bromophenyl pheny	0.310	0.322	0.316	0.307	0.290	0.285	0.293	8.85
69)	T,P	Hexachlorobenzene	0.331	0.335	0.333	0.317	0.299	0.289	0.305	9.31
70)	T,P	Pentachlorophenol		0.184	0.198	0.190	0.185	0.179	0.180	7.97
71)	T	Pentachloronitroben	0.108	0.123	0.125	0.115	0.109	0.106	0.110	10.07
72)	T	n-Octadecane		0.670	0.613	0.524	0.455	0.401	0.502	~~24.58~~
73)	T,P	Phenanthrene	1.678	1.684	1.603	1.477	1.331	1.254	1.405	17.41
74)	T,P	Anthracene	1.640	1.652	1.610	1.472	1.376	1.294	1.404	16.82
75)	T,P	Carbazole	1.136	0.982	0.861	0.852	0.991	0.959	0.952	9.64
76)	T,P	Di-n-butyl phthalat		1.885	1.844	1.741	1.598	1.526	1.606	14.88
77)	T,P	Fluoranthene	1.698	1.749	1.718	1.616	1.491	1.412	1.517	14.42
78)	T	Benzidine	0.027	0.108	0.033	0.018	0.072	0.101	0.070	~~64.71~~
79)	I	Chrysene-d12	ISTD							
80)	T,P	Pyrene	1.794	1.817	1.781	1.780	1.662	1.606	1.680	8.17
81)	S	Terphenyl-d14	1.180	1.213	1.193	1.195	1.114	1.091	1.131	6.86
82)	T,P	Butyl benzyl phthal	0.811	0.810	0.823	0.852	0.805	0.787	0.799	4.78
83)	T,P	3,3'-Dichlorobenzid	0.437	0.505	0.476	0.456	0.472	0.479	0.466	4.90
84)	T,P	bis(2-Ethylhexyl) p	1.149	1.125	1.135	1.143	1.063	1.024	1.064	8.72
85)	T,P	Benz(a)anthracene	1.392	1.341	1.317	1.268	1.231	1.210	1.259	6.93
86)	T,P	Chrysene	1.275	1.294	1.274	1.211	1.135	1.116	1.171	9.55
87)	T,P	Di-n-octyl phthalat	1.714	1.752	1.808	1.854	1.758	1.736	1.732	5.42
88)	I	Perylene-d12	ISTD							
89)	T,P	Benzo(b)fluoranthen	1.597	1.599	1.587	1.640	1.502	1.523	1.562	3.90
90)	T,P	Benzo(k)fluoranthen	1.280	1.409	1.380	1.347	1.264	1.216	1.222	15.72
91)	T,P	Benzo(a)pyrene	1.315	1.358	1.345	1.334	1.274	1.278	1.289	4.66
92)	T,P	Indeno(1,2,3-cd)pyr	1.153	1.232	1.210	1.048	1.049	1.075	1.104	7.85
93)	T,P	Dibenz(a,h)anthrace	0.906	0.982	0.977	0.858	0.853	0.847	0.880	8.01
94)	T,P	Benzo(g,h,i)perylen	0.954	1.006	0.984	0.827	0.829	0.826	0.877	10.39

(#) = Out of Range ### Number of calibration levels exceeded format ###

Compound List Report SVOC 5

Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Tue Nov 08 15:07:47 2011
Response via : Initial Calibration
Total Cpnds : 94

PK#		Compound Name	QIon	Exp RT	Rel RT	Cal	#Qual	A/H	ID
1	I	1,4-Dichlorobenzene-d4	152	5.46	1.000	A	3	A	B
2	T	N-Nitrosodimethylamine	74	2.51	0.459	A	3	A	B
3	T	Pyridine	79	2.55	0.467	A	3	A	B
4	S	2-Fluorophenol	112	3.83	0.700	A	3	A	B
5	T	N-Nitrosodiethylamine	102	4.10	0.750	A	3	A	B
6	S	Phenol-d5	99	4.98	0.912	A	3	A	B
7	T	Phenol	94	5.00	0.915	A	3	A	R
8	T	Aniline	93	5.05	0.923	A	2	A	B
9	T	bis(2-Chloroethyl) ether	93	5.12	0.937	A	2	A	B
10	T	n-Decane	57	5.26	0.963	A	3	A	B
11	T	2-Chlorophenol	128	5.20	0.952	A	3	A	B
12	T	1,3-Dichlorobenzene	146	5.40	0.988	A	2	A	R
13	T	1,4-Dichlorobenzene	146	5.49	1.004	A	2	A	R
14	T	Benzyl alcohol	108	5.63	1.031	A	3	A	B
15	T	1,2-Dichlorobenzene	146	5.67	1.038	A	2	A	B
16	T	2-Methylphenol	107	5.76	1.054	A	3	A	B
17	T	bis(2-Chloroisopropyl) ether	45	5.79	1.060	A	2	A	B
18	T	4-Methylphenol	108	5.96	1.091	A	3	A	L
19	T	N-Nitrosodipropylamine	70	5.96	1.092	A	3	A	B
20	T	o-Toluidine	106	5.99	1.096	A	3	A	R
21	T	Hexachloroethane	117	6.06	1.110	A	3	A	B
22	I	Naphthalene-d8	136	6.88	1.000	A	3	A	B
23	S	Nitrobenzene-d5	82	6.12	0.889	A	2	A	B
24	T	Nitrobenzene	77	6.14	0.892	A	3	A	B
25	T	Isophorone	82	6.40	0.931	A	3	A	B
26	T	2-Nitrophenol	139	6.48	0.942	A	3	A	B
27	T	2,4-Dimethylphenol	122	6.53	0.949	A	3	A	B
28	T	Benzoic acid	122	6.65	0.967	A	3	A	R
29	T	bis(2-Chloroethoxy)methane	93	6.62	0.962	A	2	A	B
30	T	2,4-Dichlorophenol	162	6.74	0.980	A	3	A	B
31	T	1,2,4-Trichlorobenzene	180	6.82	0.991	A	3	A	B
32	T	4-Chlorophenol	128	6.90	1.003	A	3	A	B
33	T	Naphthalene	128	6.90	1.003	A	3	A	B
34	T	4-Chloroaniline	127	6.95	1.010	A	3	A	B
35	T	2,6-Dichlorophenol	162	6.96	1.012	A	3	A	B
36	T	Hexachlorobutadiene	225	7.03	1.021	A	3	A	B
37	T	4-Chloro-3-methylphenol	107	7.41	1.077	A	2	A	B
38	T	2-Methylnaphthalene	142	7.57	1.100	A	3	A	A
39	I	Acenaphthene-d10	164	8.52	1.000	A	2	A	B
40	T	Hexachlorocyclopentadiene	237	7.72	0.906	A	3	A	B
41	T	1,2,4,5-Tetrachlorobenzene	216	7.73	0.907	A	3	A	B
42	T	2,4,6-Trichlorophenol	196	7.83	0.919	A	3	A	R
43	T	2,4,5-Trichlorophenol	196	7.86	0.923	A	3	A	R
44	S	2-Fluorobiphenyl	172	7.90	0.927	A	3	A	B
45	T	2-Chloronaphthalene	162	8.02	0.941	A	3	A	B
46	T	1-Chloronaphthalene	162	8.05	0.944	A	3	A	B
47	T	2-Nitroaniline	138	8.10	0.951	A	3	A	B
48	T	Dimethyl phthalate	163	8.26	0.970	A	3	A	B
49	T	2,6-Dinitrotoluene	165	8.32	0.976	A	3	A	B
50	T	Acenaphthylene	152	8.39	0.985	A	3	A	B
51	T	3-Nitroaniline	65	8.47	0.994	A	2	A	B
52	T	Acenaphthene	153	8.55	1.004	A	3	A	B
53	T	2,4-Dinitrophenol	184	8.56	1.005	Q	3	A	B
54	T	4-Nitrophenol	65	8.61	1.010	A	3	A	B
55	T	Pentachlorobenzene	250	8.67	1.017	A	3	A	B
56	T	2,4-Dinitrotoluene	165	8.68	1.018	A	3	A	B
57	T	Dibenzofuran	168	8.70	1.021	A	3	A	B
58	T	2,3,4,6-Tetrachlorophenol	232	8.80	1.033	A	3	A	B
59	T	Diethyl phthalate	149	8.87	1.041	A	3	A	B
60	T	4-Chlorophenyl phenyl ether	204	8.98	1.054	A	2	A	B
61	T	Fluorene	166	9.00	1.056	A	3	A	B
62	T	4-Nitroaniline	138	9.01	1.058	A	3	A	B
63	S	2,4,6-Tribromophenol	330	9.21	1.080	A	3	A	B
64	I	Phenanthrene-d10	188	9.81	1.000	A	2	A	R
65	T	4,6-Dinitro-2-methylphenol	198	9.04	0.922	A	3	A	B
66	T	N-Nitrosodiphenylamine	169	9.08	0.926	A	2	A	B
67	T	Azobenzene	77	9.12	0.930	A	3	A	B
68	T	4-Bromophenyl phenyl ether	248	9.40	0.959	A	2	A	B
69	T	Hexachlorobenzene	284	9.48	0.967	A	2	A	B
70	T	Pentachlorophenol	266	9.64	0.983	A	3	A	B
71	T	Pentachloronitrobenzene	237	9.66	0.985	A	3	A	B

72	T	n-Octadecane	57	9.65	0.984	Q	3	A	B
73	T	Phenanthrene	178	9.83	1.002	A	3	A	R
74	T	Anthracene	178	9.87	1.007	A	3	A	R
75	T	Carbazole	167	9.99	1.019	A	3	A	B
76	T	Di-n-butyl phthalate	149	10.24	1.044	A	3	A	B
77	T	Fluoranthene	202	10.83	1.105	A	3	A	B
78	T	Benzidine	184	10.92	1.114	Q	3	A	B
79	I	Chrysene-d12	240	12.24	1.000	A	2	A	B
80	T	Pyrene	202	11.04	0.902	A	3	A	B
81	S	Terphenyl-d14	244	11.14	0.910	A	3	A	B
82	T	Butyl benzyl phthalate	149	11.58	0.946	A	3	A	B
83	T	3,3'-Dichlorobenzidine	252	12.18	0.995	A	3	A	B
84	T	bis(2-Ethylhexyl) phthalate	149	12.16	0.994	A	3	A	B
85	T	Benz(a)anthracene	228	12.22	0.998	A	3	A	R
86	T	Chrysene	228	12.27	1.002	A	3	A	R
87	T	Di-n-octyl phthalate	149	12.89	1.053	A	3	A	B
88	I	Perylene-d12	264	13.88	1.000	A	3	A	B
89	T	Benzo(b)fluoranthene	252	13.44	0.968	A	3	A	B
90	T	Benzo(k)fluoranthene	252	13.47	0.971	A	3	A	B
91	T	Benzo(a)pyrene	252	13.81	0.995	A	3	A	B
92	T	Indeno(1,2,3-cd)pyrene	276	15.18	1.094	A	3	A	B
93	T	Dibenz(a,h)anthracene	278	15.19	1.095	A	3	A	B
94	T	Benzo(g,h,i)perylene	276	15.56	1.121	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

100711S5.M Tue Nov 08 15:33:00 2011

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: RTI Laboratories

Lab Code: GLEN01 Client ID: TET15 SDG No.: 1108481

Lab File ID: 10071101.D DFTPP Injection Date: 10/7/2011

Instrument ID: SVOC5 DFTPP Injection Time: 9:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30-60% of mass 198	34.0
68	<2% of mass 69	0.0
70	<2% of mass 69	0.4
127	40-60% of mass 198	49.0
197	<1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5-9% of mass 198	7.1
275	10-30% of mass 198	23.0
365	>1% of mass 198	2.2
441	Present but less than mass 443	76.0
442	>40% of mass 198	51.0
443	17-23% of mass 442	20.0

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ICV S5 100711	ICV S5 100711	10071110.D	10/07/11	14:33
02	RLVS1 S5 100711	RLVS1 S5 100711	10071111.D	10/07/11	15:45
03	MB-23545	MB-23545	10071112.D	10/07/11	16:09
04	LCS-23545	LCS-23545	10071113.D	10/07/11	16:32
05	LCSD-23545	LCSD-23545	10071114.D	10/07/11	17:01
06	ZZZZZ	1108257-006A	10071115.D	10/07/11	17:24
07	ZZZZZ	1109174-001B	10071116.D	10/07/11	17:48
08	)A-SO-RIA33-SB04-030	1108481-013A	10071117.D	10/07/11	18:11
09	)A-SO-RIA33-SB08-030	1108481-014A	10071118.D	10/07/11	18:35
10	OA-SO-DUP05-081511	1108481-015A	10071119.D	10/07/11	18:58
11	)A-SO-RIA33-SB10-030	1108481-016A	10071120.D	10/07/11	19:22
12	)A-SO-RIA33-SB14-050	1108481-017A	10071121.D	10/07/11	19:46
13	)A-SO-RIA33-SB02-050	1108481-018A	10071122.D	10/07/11	20:09
14	RLVS2 S5 100711	RLVS2 S5 100711	10071124.D	10/07/11	20:56

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100711\10071110.D Vial: 85
Acq On : 7 Oct 2011 2:33 pm Operator: Michael Truchan
Sample : ICV S5 100711 Inst : SVOC 5
Misc : ICAL SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Tue Nov 08 15:07:47 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	107	0.00
2	T	N-Nitrosodimethylamine	0.959	0.964	-0.5	108	0.02
3	T	Pyridine	1.503	1.498	0.3	110	0.02
4	S	2-Fluorophenol	1.524	2.671	-75.3#	192#	0.01
5	T	N-Nitrosodiethylamine	0.786	0.778	1.0	107	0.00
6	S	Phenol-d5	1.830	3.494	-90.9#	209#	0.00
7	T,P	Phenol	1.846	1.717	7.0	103	0.00
8	T	Aniline	2.395	2.308	3.6	105	0.00
9	T,P	bis(2-Chloroethyl) ether	1.475	1.355	8.1	107	0.00
10	T	n-Decane	1.549	1.298	16.2	97	0.00
11	T,P	2-Chlorophenol	1.592	1.553	2.4	109	0.00
12	T	1,3-Dichlorobenzene	1.747	1.659	5.0	108	0.00
13	T	1,4-Dichlorobenzene	1.698	1.543	9.1	105	0.00
14	T	Benzyl alcohol	0.986	0.938	4.9	106	0.00
15	T	1,2-Dichlorobenzene	1.650	1.544	6.4	107	0.00
16	T,P	2-Methylphenol	1.258	1.165	7.4	106	0.00
17	T	bis(2-Chloroisopropyl) ethe	1.534	1.609	-4.9	119	0.00
18	T,P	4-Methylphenol	1.308	1.036	20.8#	115	0.00
19	T,P	N-Nitrosodipropylamine	0.866	0.813	6.1	116	0.00
20	T	o-Toluidine	2.254	2.202	2.3	104	0.00
21	T,P	Hexachloroethane	0.622	0.587	5.6	107	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00
23	S	Nitrobenzene-d5	0.438	0.408	6.8	105	0.00
24	T,P	Nitrobenzene	0.429	0.395	7.9	107	0.00
25	T,P	Isophorone	0.841	0.796	5.4	108	0.00
26	T,P	2-Nitrophenol	0.257	0.245	4.7	108	0.00
27	T,P	2,4-Dimethylphenol	0.403	0.359	10.9	108	0.00
28	T	Benzoic acid	0.266	0.194	27.1#	76	0.02
29	T,P	bis(2-Chloroethoxy)methane	0.507	0.476	6.1	109	0.00
30	T,P	2,4-Dichlorophenol	0.388	0.357	8.0	105	0.00
31	T	1,2,4-Trichlorobenzene	0.429	0.394	8.2	108	0.00
32	T	4-Chlorophenol	1.098	0.000	100.0#	0#	-6.90#
33	T,P	Naphthalene	1.233	1.058	14.2	106	0.00
34	T,P	4-Chloroaniline	0.464	0.455	1.9	108	0.00
35	T	2,6-Dichlorophenol	0.356	0.328	7.9	110	0.00
36	T,P	Hexachlorobutadiene	0.224	0.206	8.0	110	0.00
37	T,P	4-Chloro-3-methylphenol	0.359	0.335	6.7	107	0.00
38	T,P	2-Methylnaphthalene	0.881	0.761	13.6	107	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	110	0.00
40	T,P	Hexachlorocyclopentadiene	0.313	0.333	-6.4	129	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.695	0.597	14.1	107	0.00
42	T,P	2,4,6-Trichlorophenol	0.486	0.469	3.5	112	0.00
43	T,P	2,4,5-Trichlorophenol	0.485	0.426	12.2	106	0.00
44	S	2-Fluorobiphenyl	1.697	1.459	14.0	108	0.00
45	T,P	2-Chloronaphthalene	1.800	1.572	12.7	110	0.00
46	T,P	1-Chloronaphthalene	1.184	0.963	18.7	101	0.00
47	T,P	2-Nitroaniline	0.516	0.492	4.7	107	0.00
48	T,P	Dimethyl phthalate	1.674	1.520	9.2	107	0.00
49	T,P	2,6-Dinitrotoluene	0.387	0.368	4.9	107	0.00
50	T,P	Acenaphthylene	2.303	2.003	13.0	109	0.00
51	T,P	3-Nitroaniline	0.345	0.400	-15.9	117	0.00
52	T,P	Acenaphthene	1.310	1.127	14.0	109	0.00
53	T,P	2,4-Dinitrophenol	0.108	0.141	-30.6#	127	0.00
54	T,P	4-Nitrophenol	0.210	0.194	7.6	105	0.00
55	T	Pentachlorobenzene	0.591	0.527	10.8	108	0.00
56	T,P	2,4-Dinitrotoluene	0.447	0.450	-0.7	111	0.00
57	T,P	Dibenzofuran	1.976	1.670	15.5	105	0.00
58	T,P	2,3,4,6-Tetrachlorophenol	0.377	0.371	1.6	113	0.00
59	T,P	Diethyl phthalate	1.567	1.430	8.7	108	0.00
60	T,P	4-Chlorophenyl phenyl ether	0.779	0.668	14.2	107	0.00

(#) = Out of Range
10071110.D 100711S5.M Wed Nov 09 07:28:33 2011

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\100711\10071110.D Vial: 85
Acq On : 7 Oct 2011 2:33 pm Operator: Michael Truchan
Sample : ICV S5 100711 Inst : SVOC 5
Misc : ICAL SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\2\METHODS\100711S5.M (RTE Integrator)
Title : 8270D SEMI-VOA ORGANICS
Last Update : Tue Nov 08 15:07:47 2011
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
61	T,P	Fluorene	1.500	1.202	19.9	106	0.00
62	T,P	4-Nitroaniline	0.330	0.358	-8.5	117	0.00
63	S	2,4,6-Tribromophenol	0.218	0.409	-87.6#	212#	0.00
64	I	Phenanthrene-d10	1.000	1.000	0.0	108	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.122	0.147	-20.5#	120	0.00
66	T,P	N-Nitrosodiphenylamine	1.431	0.765	46.5#	69	0.00
67	T	Azobenzene	0.885	0.759	14.2	106	0.00
68	T,P	4-Bromophenyl phenyl ether	0.293	0.265	9.6	106	0.00
69	T,P	Hexachlorobenzene	0.305	0.283	7.2	110	0.00
70	T,P	Pentachlorophenol	0.180	0.171	5.0	110	0.00
71	T	Pentachloronitrobenzene	0.110	0.090	18.2	96	0.00
72	T	n-Octadecane	0.502	0.299	40.4#	92	0.00
73	T,P	Phenanthrene	1.405	1.147	18.4	104	0.00
74	T,P	Anthracene	1.404	1.175	16.3	106	0.00
75	T,P	Carbazole	0.952	1.117	-17.3	128	0.00
76	T,P	Di-n-butyl phthalate	1.606	1.389	13.5	105	0.00
77	T,P	Fluoranthene	1.517	1.303	14.1	106	0.00
78	T	Benzidine	0.070	0.859	-1127.1#	704#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	105	0.00
80	T,P	Pyrene	1.680	1.559	7.2	104	0.00
81	S	Terphenyl-d14	1.131	1.079	4.6	106	0.00
82	T,P	Butyl benzyl phthalate	0.799	0.676	15.4	91	0.00
83	T,P	3,3'-Dichlorobenzidine	0.466	0.806	-73.0#	182#	0.01
84	T,P	bis(2-Ethylhexyl) phthalate	1.064	0.985	7.4	105	0.00
85	T,P	Benz(a)anthracene	1.259	1.331	-5.7	119	0.00
86	T,P	Chrysene	1.171	1.073	8.4	104	0.00
87	T,P	Di-n-octyl phthalate	1.732	1.702	1.7	106	0.00
88	I	Perylene-d12	1.000	1.000	0.0	101	0.00
89	T,P	Benzo(b)fluoranthene	1.562	1.516	2.9	96	0.00
90	T,P	Benzo(k)fluoranthene	1.222	1.182	3.3	114	0.00
91	T,P	Benzo(a)pyrene	1.289	1.250	3.0	103	0.00
92	T,P	Indeno(1,2,3-cd)pyrene	1.104	1.025	7.2	96	0.00
93	T,P	Dibenz(a,h)anthracene	0.880	0.841	4.4	100	0.00
94	T,P	Benzo(g,h,i)perylene	0.877	0.811	7.5	98	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
10071110.D 100711S5.M Wed Nov 09 07:28:34 2011 Page 2

Inst. SVOC 6

Injection Log

Directory: C:\HPCHEM\1\DATA\100611

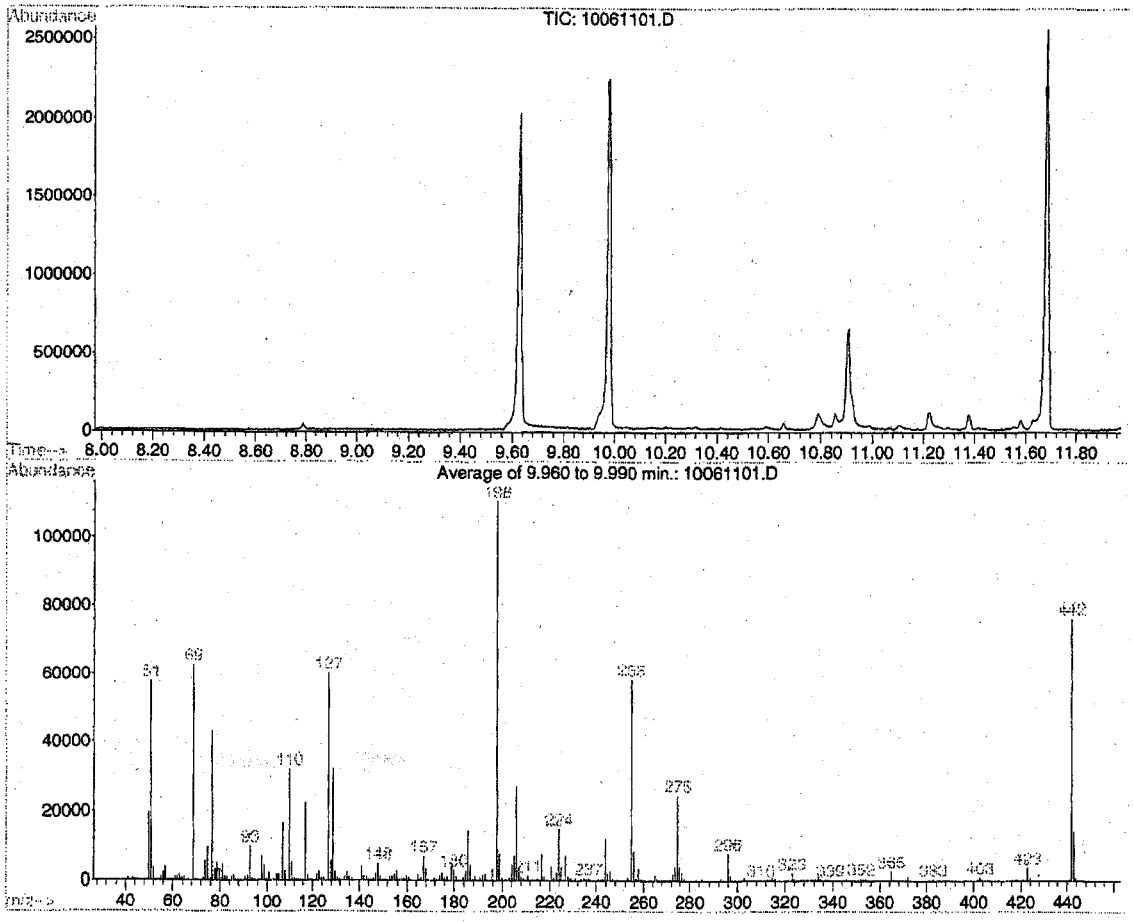
CAL

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	10061101.d	1.	TUNE1 S6 100611	TUNE DFTPP_TUNE	6 Oct 2011 16:26
2	77	10061102.d	1.	1 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 16:49
3	78	10061103.d	1.	2.5 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 17:12
4	79	10061104.d	1.	5 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 17:35
5	80	10061105.d	1.	10 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 17:59
6	81	10061106.d	1.	15 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 18:22
7	82	10061107.d	1.	20 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 18:45
8	83	10061108.d	1.	25 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 19:09
9	84	10061109.d	1.	50 ug/mL S6 100611	ICAL SW_8270S	6 Oct 2011 19:32
10	85	10061110.d	1.	ICV1 S6 100611	ICV SW_8270A	6 Oct 2011 19:55

DFTPP

Data File : C:\HPCHEM\1\DATA\100611\10061101.D
Acq On : 6 Oct 2011 4:26 pm
Sample : TUNE1 S6 100611
Misc : TUNE DFTPP TUNE
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics

Vial: 76
Operator: MICHAE TRUCHAN
Inst : SVOC 6
Multiplr: 1.00



Spectrum Information: Average of 9.960 to 9.990 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	52.2	57814	PASS
68	69	0.00	2	0.0	0	PASS
70	69	0.00	2	0.4	251	PASS
127	198	40	60	54.6	60449	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	110716	PASS
199	198	5	9	7.0	7748	PASS
275	198	10	30	22.2	24606	PASS
365	198	1	100	2.5	2769	PASS
441	443	0.01	100	1.7	253	PASS
442	198	40	100	69.2	76649	PASS
443	442	17	23	19.3	14805	PASS

10061101.D 100611S6.M Fri Oct 07 13:07:49 2011

Response Factor Report SVOC 6

Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Oct 07 10:27:07 2011
Response via : Initial Calibration

Calibration Files
1 =10061102.D 2.5 =10061103.D 5 =10061104.D
10 =10061105.D 15 =10061109.D 25 =10061108.D

		Compound	1	2.5	5	10	15	25	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------			ISTD	----------			
2)	T	N-Nitrosodimethylam	0.655	0.775	0.716	0.671	0.669	0.558	0.646	12.38
3)	T	Pyridine	0.937	1.041	1.061	1.030	0.919	0.805	0.919	13.21
4)	S	2-Fluorophenol	1.545	1.466	1.523	1.409	1.369	1.279	1.383	9.38
5)	T	N-Nitrosodiethylami	0.685	0.702	0.790	0.705	0.726	0.658	0.698	6.56
6)	S	Phenol-d5	1.507	1.714	1.705	1.565	1.560	1.393	1.518	10.02
7)	T,P	Phenol	1.557	1.473	1.525	1.395	1.368	1.285	1.382	9.94
8)	T	Aniline	1.578	1.601	1.824	1.706	1.719	1.617	1.677	4.72
9)	T,P	bis(2-Chloroethyl)	1.488	1.516	1.507	1.403	1.154	1.067	1.263	19.58
10)	T	n-Decane	1.264	1.314	1.256	1.087	0.986	0.942	1.082	16.35
11)	T,P	2-Chlorophenol	1.574	1.752	1.729	1.708	1.560	1.492	1.591	8.39
12)	T	1,3-Dichlorobenzene	1.829	1.877	1.904	1.853	1.700	1.610	1.723	10.06
13)	T	1,4-Dichlorobenzene	1.857	1.893	1.845	1.689	1.574	1.497	1.651	12.11
14)	T	Benzyl alcohol	0.674	0.747	0.797	0.804	0.753	0.715	0.736	7.98
15)	T	1,2-Dichlorobenzene	1.690	1.698	1.834	1.650	1.597	1.451	1.588	10.90
16)	T,P	2-Methylphenol	0.977	1.143	1.157	1.072	1.041	0.976	1.037	7.99
17)	T	Bis(2-chloroisoprop	1.407	1.251	1.421	1.363	1.228	1.148	1.256	10.47
18)	T,P	4-Methylphenol	1.170	1.078	1.074	0.905	0.779	0.733	0.913	18.68
19)	T,P	N-Nitrosodipropylam	1.151	1.196	1.172	1.505	1.486	1.498	1.374	12.15
20)	T	o-Toluidine	2.073	1.895	2.053	1.963	1.734	1.719	1.874	8.53
21)	T,P	Hexachloroethane	0.699	0.770	0.777	0.778	0.676	0.660	0.711	7.96
22)	I	Naphthalene-d8	----------			ISTD	----------			
23)	S	Nitrobenzene-d5	0.424	0.402	0.460	0.410	0.371	0.371	0.396	8.66
24)	T,P	Nitrobenzene	0.336	0.409	0.427	0.388	0.354	0.338	0.365	10.56
25)	T,P	Isophorone	0.771	0.802	0.811	0.766	0.718	0.702	0.738	8.41
26)	T,P	2-Nitrophenol	0.295	0.325	0.354	0.316	0.298	0.285	0.305	8.33
27)	T,P	2,4-Dimethylphenol	0.438	0.426	0.486	0.472	0.348	0.379	0.402	17.59
28)	T	Benzoic acid				0.213	0.231	0.243	0.230	5.39
29)	T,P	bis(2-Chloroethoxy)	0.494	0.527	0.494	0.489	0.433	0.414	0.458	11.43
30)	T,P	2,4-Dichlorophenol	0.377	0.378	0.451	0.433	0.401	0.384	0.393	10.06
31)	T	1,2,4-Trichlorobenz	0.472	0.486	0.484	0.482	0.444	0.414	0.446	9.38
32)	T	4-Chlorophenol							0.000#	-1.00
33)	T,P	Naphthalene	1.380	1.327	1.295	1.229	1.123	1.047	1.182	12.43
34)	T,P	4-Chloroaniline	0.451	0.395	0.400	0.415	0.425	0.419	0.410	6.28
35)	T	2,6-Dichlorophenol	0.336	0.434	0.403	0.385	0.367	0.344	0.361	13.19
36)	T,P	Hexachlorobutadiene	0.259	0.296	0.289	0.284	0.263	0.260	0.272	5.50
37)	T,P	4-Chloro-3-methylph	0.265	0.328	0.345	0.338	0.308	0.332	0.314	10.18
38)	T,P	2-Methylnaphthalene	0.940	0.989	0.941	0.868	0.801	0.733	0.843	12.60
39)	I	Acenaphthene-d10	----------			ISTD	----------			
40)	T,P	Hexachlorocyclopent		0.391	0.446	0.433	0.408	0.400	0.413	4.73
41)	T,P	1,2,4,5-Tetrachloro		0.800	0.824	0.787	0.729	0.682	0.742	8.57
42)	T,P	2,4,6-Trichlorophen	0.497	0.508	0.567	0.529	0.527	0.511	0.518	5.78
43)	T,P	2,4,5-Trichlorophen	0.473	0.432	0.539	0.528	0.489	0.475	0.477	10.12
44)	S	2-Fluorobiphenyl	1.848	1.733	1.770	1.606	1.528	1.408	1.588	11.58
45)	T,P	2-Chloronaphthalene	1.837	1.920	2.056	1.801	1.762	1.652	1.765	13.44
46)	T,P	1-Chloronaphthalene	1.395	1.281	1.098	1.140	1.001	0.876	1.087	19.10
47)	T,P	2-Nitroaniline	0.544	0.557	0.587	0.588	0.572	0.558	0.557	6.03
48)	T,P	Dimethyl phthalate	1.764	1.802	1.802	1.747	1.626	1.579	1.669	8.82
49)	T,P	2,6-Dinitrotoluene	0.431	0.392	0.471	0.452	0.402	0.404	0.413	10.92
50)	T,P	Acenaphthylene	2.195	2.354	2.408	2.231	2.107	2.004	2.159	8.40
51)	T,P	3-Nitroaniline	0.303	0.315	0.295	0.271	0.300	0.348	0.309	7.43
52)	T,P	Acenaphthene	1.435	1.391	1.351	1.287	1.157	1.075	1.226	13.54
53)	T,P	2,4-Dinitrophenol			0.220	0.221	0.239	0.256	0.244	8.45
54)	T,P	4-Nitrophenol		0.171	0.202	0.225	0.219	0.220	0.207	9.54
55)	T	Pentachlorobenzene	0.675	0.647	0.649	0.606	0.581	0.561	0.608	7.20
56)	T,P	2,4-Dinitrotoluene	0.504	0.541	0.565	0.527	0.490	0.478	0.502	9.05
57)	T,P	Dibenzofuran	2.178	2.097	2.074	1.954	1.896	1.712	1.887	13.44
58)	T,P	2,3,4,6-Tetrachloro	0.289	0.399	0.441	0.429	0.408	0.410	0.394	11.98
59)	T,P	Diethyl phthalate	1.956	2.036	1.852	1.808	1.789	1.724	1.796	10.01
60)	T,P	4-Chlorophenyl phen	0.786	0.785	0.776	0.731	0.692	0.667	0.712	10.43
61)	T,P	Fluorene	1.493	1.519	1.439	1.296	1.227	1.146	1.298	12.74

62)	T,P	4-Nitroaniline	0.302	0.320	0.351	0.366	0.387	0.373	0.346	11.78
63)	S	2,4,6-Tribromopheno	0.216	0.253	0.313	0.290	0.296	0.302	0.279	11.87
64)	I	Phenanthrene-d10	----------ISTD----------							
65)	T,P	4,6-Dinitro-2-methy		0.167	0.204	0.221	0.221	0.223	0.210	10.10
66)	T,P	N-Nitrosodiphenylam	1.409	1.528	1.493	1.407	1.337	1.265	1.369	8.02
67)	T	Azobenzene	0.805	0.812	0.822	0.765	0.730	0.686	0.786	11.37
68)	T,P	4-Bromophenyl pheny	0.296	0.299	0.309	0.300	0.279	0.273	0.290	4.51
69)	T,P	Hexachlorobenzene	0.328	0.349	0.350	0.328	0.320	0.308	0.328	4.70
70)	T,P	Pentachlorophenol		0.168	0.213	0.207	0.211	0.214	0.207	8.60
71)	T	Pentachloronitroben	0.113	0.145	0.148	0.160	0.147	0.146	0.145	9.40
72)	T	n-Octadecane	0.558	0.533	0.456	0.401	0.379	0.399	0.454	16.17
73)	T,P	Phenanthrene	1.394	1.492	1.462	1.377	1.255	1.195	1.341	7.90
74)	T,P	Anthracene	1.329	1.478	1.457	1.262	1.241	1.134	1.275	10.66
75)	T,P	Carbazole	1.205	1.283	1.000	0.841	0.928	0.993	1.026	14.20
76)	T,P	Di-n-butyl phthalat	1.893	2.132	2.100	1.988	1.853	1.744	1.898	8.75
77)	T,P	Fluoranthene	1.456	1.534	1.478	1.311	1.284	1.194	1.338	10.02
78)	T	Benzidine		0.084	0.046	0.021	0.036	0.111	0.060	~~95.64~~
79)	I	Chrysene-d12	----------ISTD----------							
80)	T,P	Pyrene	1.743	1.729	1.766	1.642	1.600	1.451	1.602	9.05
81)	S	Terphenyl-d14	1.146	1.134	1.150	1.055	1.044	0.964	1.061	7.03
82)	T,P	Butyl benzyl phthal	0.975	0.984	1.022	1.002	0.972	0.886	0.953	6.35
83)	T,P	3,3'-Dichlorobenzid	0.628	0.429	0.397	0.399	0.442	0.473	0.464	15.88
84)	T,P	bis(2-Ethylhexyl) p	1.248	1.321	1.331	1.293	1.222	1.181	1.246	5.05
85)	T,P	Benz(a)anthracene	1.281	1.161	1.126	1.130	1.098	1.056	1.122	6.73
86)	T,P	Chrysene	1.367	1.181	1.186	1.134	1.089	1.000	1.124	10.97
87)	T,P	Di-n-octyl phthalat		1.978	2.111	2.063	2.031	1.921	1.997	3.70
88)	I	Perylene-d12	----------ISTD----------							
89)	T,P	Benzo(b)fluoranthen	1.412	1.330	1.513	1.489	1.390	1.365	1.411	4.33
90)	T,P	Benzo(k)fluoranthen	1.129	1.329	1.215	1.139	1.136	1.039	1.132	9.82
91)	T,P	Benzo(a)pyrene	1.267	1.245	1.244	1.270	1.213	1.187	1.214	4.54
92)	T,P	Indeno(1,2,3-cd)pyr	1.111	1.180	1.261	1.154	1.132	1.138	1.152	5.16
93)	T,P	Dibenz(a,h)anthrace	0.904	0.950	1.015	0.977	0.903	0.889	0.923	6.10
94)	T,P	Benzo(g,h,i)perylen	0.869	0.916	0.892	0.892	0.917	0.878	0.886	3.73

(#) = Out of Range ### Number of calibration levels exceeded format ###

100611S6.M Fri Oct 07 13:07:53 2011

Compound List Report SVOC 6

Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Oct 07 10:27:07 2011
Response via : Initial Calibration
Total Cpnds : 94

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dichlorobenzene-d4	152	5.49	1.000	A	3	A	B
2	T	N-Nitrosodimethylamine	74	2.55	0.465	A	3	A	B
3	T	Pyridine	79	2.60	0.473	A	3	A	B
4	S	2-Fluorophenol	112	3.88	0.706	A	3	A	B
5	T	N-Nitrosodiethylamine	102	4.14	0.755	A	3	A	B
6	S	Phenol-d5	99	5.02	0.915	A	3	A	B
7	T	Phenol	94	5.05	0.920	A	3	A	B
8	T	Aniline	93	5.09	0.927	A	2	A	B
9	T	bis(2-Chloroethyl) ether	93	5.16	0.939	A	2	A	B
10	T	n-Decane	57	5.29	0.963	A	3	A	B
11	T	2-Chlorophenol	128	5.24	0.955	A	3	A	B
12	T	1,3-Dichlorobenzene	146	5.42	0.988	A	2	A	R
13	T	1,4-Dichlorobenzene	146	5.51	1.004	A	2	A	R
14	T	Benzyl alcohol	108	5.66	1.032	A	3	A	B
15	T	1,2-Dichlorobenzene	146	5.70	1.038	A	2	A	B
16	T	2-Methylphenol	107	5.80	1.056	A	3	A	B
17	T	Bis(2-chloroisopropyl) ether	45	5.82	1.059	A	2	A	B
18	T	4-Methylphenol	108	6.02	1.096	A	3	A	B
19	T	N-Nitrosodipropylamine	43	6.00	1.094	A	3	A	B
20	T	o-Toluidine	106	6.02	1.096	A	3	A	B
21	T	Hexachloroethane	117	6.09	1.108	A	3	A	B
22	I	Naphthalene-d8	136	6.90	1.000	A	3	A	B
23	S	Nitrobenzene-d5	82	6.15	0.891	A	2	A	B
24	T	Nitrobenzene	77	6.17	0.894	A	3	A	B
25	T	Isophorone	82	6.44	0.934	A	3	A	B
26	T	2-Nitrophenol	139	6.50	0.942	A	3	A	B
27	T	2,4-Dimethylphenol	122	6.56	0.951	A	3	A	B
28	T	Benzoic acid	122	6.71	0.973	A	3	A	B
29	T	bis(2-Chloroethoxy)methane	93	6.63	0.962	A	2	A	B
30	T	2,4-Dichlorophenol	162	6.76	0.981	A	3	A	B
31	T	1,2,4-Trichlorobenzene	180	6.83	0.991	A	3	A	B
32	T	4-Chlorophenol	128	6.90	1.001	A	3	A	B
33	T	Naphthalene	128	6.92	1.003	A	3	A	B
34	T	4-Chloroaniline	127	6.97	1.011	A	3	A	B
35	T	2,6-Dichlorophenol	162	6.98	1.012	A	3	A	B
36	T	Hexachlorobutadiene	225	7.04	1.021	A	3	A	B
37	T	4-Chloro-3-methylphenol	107	7.43	1.078	A	2	A	B
38	T	2-Methylnaphthalene	142	7.58	1.099	A	3	A	B
39	I	Acenaphthene-d10	164	8.52	1.000	A	2	A	B
40	T	Hexachlorocyclopentadiene	237	7.73	0.907	A	3	A	B
41	T	1,2,4,5-Tetrachlorobenzene	216	7.74	0.908	A	3	A	B
42	T	2,4,6-Trichlorophenol	196	7.84	0.920	A	3	A	R
43	T	2,4,5-Trichlorophenol	196	7.88	0.924	A	3	A	R
44	S	2-Fluorobiphenyl	172	7.91	0.928	A	3	A	B
45	T	2-Chloronaphthalene	162	8.03	0.943	A	3	A	L
46	T	1-Chloronaphthalene	162	8.06	0.946	A	3	A	R
47	T	2-Nitroaniline	138	8.12	0.952	A	3	A	B
48	T	Dimethyl phthalate	163	8.28	0.971	A	3	A	B
49	T	2,6-Dinitrotoluene	165	8.33	0.978	A	3	A	B
50	T	Acenaphthylene	152	8.40	0.986	A	3	A	B
51	T	3-Nitroaniline	65	8.48	0.996	A	2	A	B
52	T	Acenaphthene	153	8.56	1.004	A	3	A	B
53	T	2,4-Dinitrophenol	184	8.58	1.007	A	2	A	B
54	T	4-Nitrophenol	65	8.63	1.013	A	2	A	B
55	T	Pentachlorobenzene	250	8.67	1.017	A	3	A	B
56	T	2,4-Dinitrotoluene	165	8.69	1.020	A	3	A	B
57	T	Dibenzofuran	168	8.71	1.022	A	3	A	B
58	T	2,3,4,6-Tetrachlorophenol	232	8.81	1.034	A	3	A	B
59	T	Diethyl phthalate	149	8.88	1.042	A	3	A	B
60	T	4-Chlorophenyl phenyl ether	204	8.98	1.054	A	2	A	B
61	T	Fluorene	166	9.00	1.056	A	3	A	B
62	T	4-Nitroaniline	138	9.04	1.061	A	3	A	B
63	S	2,4,6-Tribromophenol	330	9.21	1.081	A	3	A	B
64	I	Phenanthrene-d10	188	9.80	1.000	A	2	A	B

65	T	4,6-Dinitro-2-methylphenol	198	9.06	0.924	A	3	A	B
66	T	N-Nitrosodiphenylamine	169	9.09	0.927	A	2	A	B
67	T	Azobenzene	77	9.11	0.929	A	3	A	B
68	T	4-Bromophenyl phenyl ether	248	9.40	0.959	A	2	A	B
69	T	Hexachlorobenzene	284	9.48	0.967	A	2	A	B
70	T	Pentachlorophenol	266	9.64	0.984	A	3	A	B
71	T	Pentachloronitrobenzene	237	9.66	0.985	A	3	A	B
72	T	n-Octadecane	57	9.65	0.984	A	3	A	B
73	T	Phenanthrene	178	9.83	1.002	A	3	A	R
74	T	Anthracene	178	9.87	1.007	A	3	A	R
75	T	Carbazole	167	9.99	1.019	A	3	A	B
76	T	Di-n-butyl phthalate	149	10.23	1.044	A	3	A	B
77	T	Fluoranthene	202	10.83	1.104	A	3	A	B
78	T	Benzidine	184	10.92	1.113	A	3	A	B
79	I	Chrysene-d12	240	12.23	1.000	A	2	A	B
80	T	Pyrene	202	11.03	0.902	A	3	A	B
81	S	Terphenyl-d14	244	11.13	0.910	A	3	A	B
82	T	Butyl benzyl phthalate	149	11.56	0.945	A	3	A	B
83	T	3,3'-Dichlorobenzidine	252	12.17	0.995	A	3	A	B
84	T	bis(2-Ethylhexyl) phthalate	149	12.14	0.993	A	3	A	B
85	T	Benz(a)anthracene	228	12.21	0.998	A	3	A	R
86	T	Chrysene	228	12.26	1.003	A	3	A	R
87	T	Di-n-octyl phthalate	149	12.86	1.051	A	3	A	B
88	I	Perylene-d12	264	13.86	1.000	A	3	A	B
89	T	Benzo(b)fluoranthene	252	13.43	0.969	A	3	A	R
90	T	Benzo(k)fluoranthene	252	13.47	0.971	A	3	A	R
91	T	Benzo(a)pyrene	252	13.80	0.995	A	3	A	B
92	T	Indeno(1,2,3-cd)pyrene	276	15.16	1.094	A	3	A	B
93	T	Dibenz(a,h)anthracene	278	15.17	1.094	A	3	A	B
94	T	Benzo(g,h,i)perylene	276	15.54	1.121	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

100611S6.M Fri Oct 07 13:08:03 2011

INST - SVOC 6

Injection Log

Directory: C:\HPCHEM\1\DATA\100711

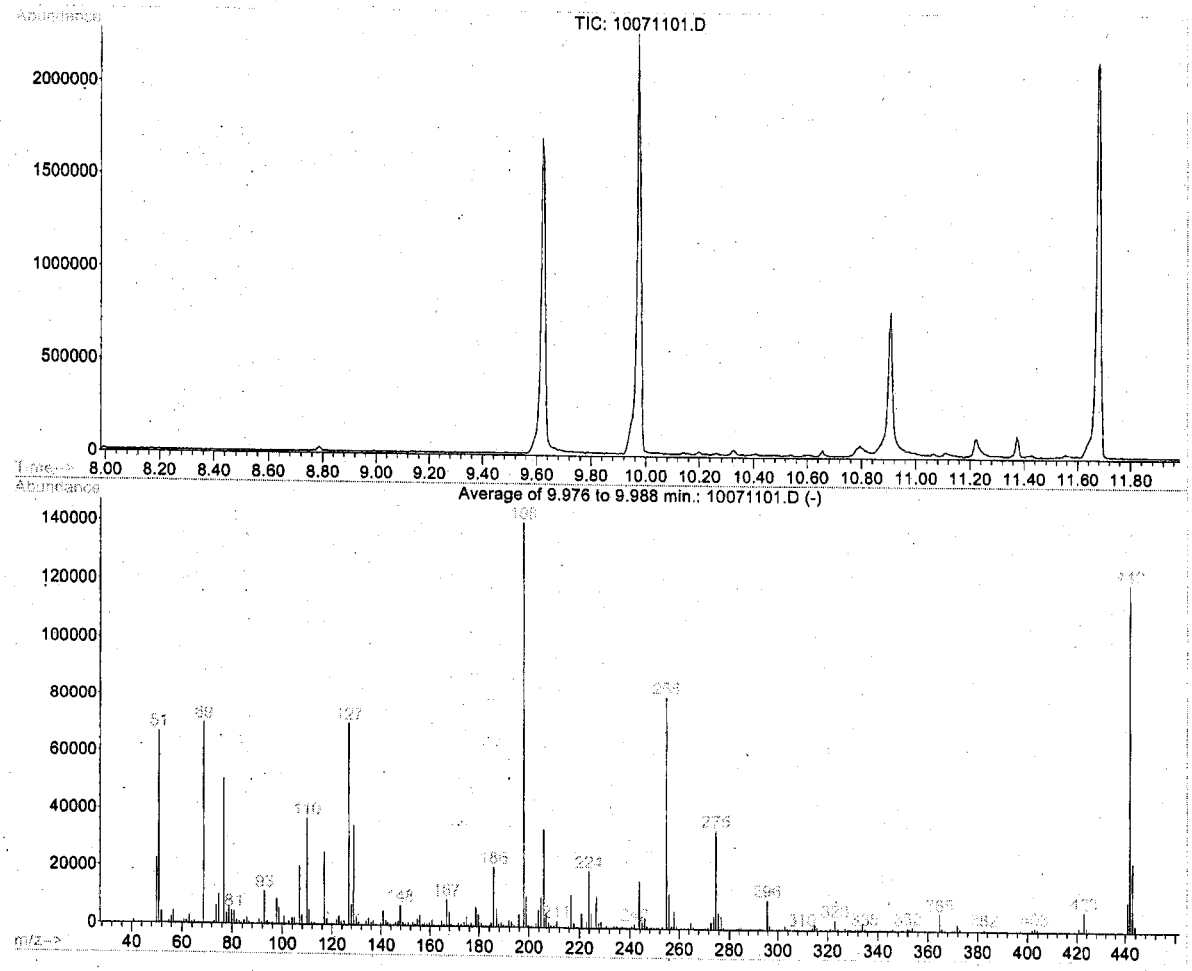
Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	76	10071101.d	1.	TUNE1 S6 100711	TUNE DFTPP_TUNE	7 Oct 2011 09:26
2	77	10071110.d	1.	ICV1 S6 100711	ICV SW_8270A	7 Oct 2011 09:49
3	78	10071111.d	1.	RLVS S6 100711	RLVS SW_8270A	7 Oct 2011 10:34
4	79	10071112.d	1.	MB-23823	MBLK SW_8270A	7 Oct 2011 10:58
5	80	10071113.d	1.	LCS-23823	LCS SW_8270A	7 Oct 2011 11:21
6	81	10071114.d	1.	LCSD-23823	LCSD SW_8270A	7 Oct 2011 11:44
7	82	10071115.d	1.	MB-23239	MBLK SW_8270A	7 Oct 2011 12:07
8	83	10071116.d	1.	LCS-23239	LCS SW_8270A	7 Oct 2011 12:30
9	84	10071117.d	5.	1109386-002A	SAMP SW_8270A	7 Oct 2011 12:53
10	85	10071118.d	5.	1109386-001A	SAMP SW_8270A	7 Oct 2011 13:17
11	86	10071119.d	1.	1109445-005A	SAMP SW_8270S	7 Oct 2011 13:40
12	87	10071120.d	1.	1109445-006A	SAMP SW_8270S	7 Oct 2011 14:04
13	88	10071121.d	1.	1109445-004A	SAMP SW_8270S	7 Oct 2011 14:27
14	89	10071122.d	1.	1109445-001A	SAMP SW_8270S	7 Oct 2011 14:50
15	90	10071123.d	1.	1109429-023A	SAMP SW_8270-MISC.	7 Oct 2011 15:13
16	91	10071124.d	1.	1109429-017A	SAMP SW_8270-MISC.	7 Oct 2011 15:37
17	92	10071125.d	1.	1109429-006A	SAMP SW_8270-MISC.	7 Oct 2011 16:00
18	93	10071126.d	5.	1109445-002A	SAMP SW_8270S	7 Oct 2011 16:23
19	94	10071127.d	5.	1109445-003A	SAMP SW_8270S	7 Oct 2011 16:46
20	95	10071128.d	1.	1108481-003A	SAMP SW_8270S	7 Oct 2011 17:10
21	96	10071129.d	1.	1108481-004A	SAMP SW_8270S	7 Oct 2011 17:33
22	97	10071130.d	1.	1108481-005A	SAMP SW_8270S	7 Oct 2011 17:56
23	98	10071131.d	5.	1108481-007A	SAMP SW_8270S	7 Oct 2011 18:20
24	99	10071132.d	1.	1108481-008A	SAMP SW_8270S	7 Oct 2011 18:43
25	100	10071133.d	1.	1108481-009A	SAMP SW_8270S	7 Oct 2011 19:06
26	1	10071134.d	1.	1108481-010A	SAMP SW_8270S	7 Oct 2011 19:30
27	2	10071135.d	1.	1108481-011A	SAMP SW_8270S	7 Oct 2011 19:53
28	78	10071136.d	1.	RLVS S6 100711	RLVS SW_8270A	7 Oct 2011 20:16

8

DFTPP

Data File : C:\HPCHEM\1\DATA\100711\10071101.D
Acq On : 7 Oct 2011 9:26 am
Sample : TUNE1 S6 100711
Misc : TUNE DFTPP TUNE
MS Integration Params: events.e
Method : C:\HPCHEM\1\METHODS\DFTPP2.M (Chemstation Integrator)
Title : DFTPP Tune Evaluation

Vial: 76
Operator: MICHAE TRUCHAN
Inst : SVOC 6
Multiplr: 1.00



Spectrum Information: Average of 9.976 to 9.988 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	47.6	66685	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	110	49.8	69822	PASS
70	69	0.00	2	0.0	0	PASS
127	198	40	60	49.9	69948	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	140148	PASS
199	198	5	9	7.2	10145	PASS
275	198	10	30	24.2	33941	PASS
365	198	1	100	4.0	5564	PASS
441	443	0.01	100	42.3	9923	PASS
442	198	40	100	86.0	120509	PASS
443	442	17	23	19.5	23449	PASS

10071101.D DFTPP2.M Tue Nov 15 13:16:09 2011

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\100711\10071110.D Vial: 77
Acq On : 7 Oct 2011 9:49 am Operator: MICHAE TRUCHAN
Sample : ICV1 S6 100711 Inst : SVOC 6
Misc : ICV SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Oct 07 10:27:07 2011
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	110	0.00
2	T	N-Nitrosodimethylamine	0.646	0.633	2.0	125	0.00
3	T	Pyridine	0.919	0.860	6.4	118	0.00
4	S	2-Fluorophenol	1.383	2.184	-57.9#	188#	-0.01
5	T	N-Nitrosodiethylamine	0.698	0.677	3.0	113	-0.01
6	S	Phenol-d5	1.518	2.652	-74.7#	210#	-0.02
7	T,P	Phenol	1.382	1.205	12.8	103	-0.02
8	T	Aniline	1.677	1.548	7.7	105	-0.01
9	T,P	bis(2-Chloroethyl) ether	1.263	1.072	15.1	111	-0.02
10	T	n-Decane	1.082	0.883	18.4	103	0.00
11	T,P	2-Chlorophenol	1.591	1.489	6.4	110	-0.02
12	T	1,3-Dichlorobenzene	1.723	1.555	9.8	106	0.00
13	T	1,4-Dichlorobenzene	1.651	1.427	13.6	105	0.00
14	T	Benzyl alcohol	0.736	0.715	2.9	110	-0.02
15	T	1,2-Dichlorobenzene	1.588	1.442	9.2	109	0.00
16	T,P	2-Methylphenol	1.037	0.885	14.7	100	-0.02
17	T	Bis(2-chloroisopropyl) ethe	1.256	1.284	-2.2	123	-0.01
18	T,P	4-Methylphenol	0.913	0.037#	95.9#	6#	0.00
19	T,P	N-Nitrosodipropylamine	1.374	1.364	0.7	100	-0.04
20	T	o-Toluidine	1.874	1.687	10.0	108	-0.02
21	T,P	Hexachloroethane	0.711	0.648	8.9	108	0.00
22	I	Naphthalene-d8	1.000	1.000	0.0	106	0.00
23	S	Nitrobenzene-d5	0.396	0.368	7.1	105	-0.02
24	T,P	Nitrobenzene	0.365	0.334	8.5	105	-0.02
25	T,P	Isophorone	0.738	0.684	7.3	103	-0.03
26	T,P	2-Nitrophenol	0.305	0.279	8.5	104	0.00
27	T,P	2,4-Dimethylphenol	0.402	0.389	3.2	109	-0.02
28	T	Benzoic acid	0.230	0.230	0.0	100	-0.05
29	T,P	bis(2-Chloroethoxy)methane	0.458	0.424	7.4	109	-0.01
30	T,P	2,4-Dichlorophenol	0.393	0.371	5.6	102	-0.02
31	T	1,2,4-Trichlorobenzene	0.446	0.401	10.1	103	0.00
32	T	4-Chlorophenol	0.000	0.000#	0.0	0#	-6.90#
33	T,P	Naphthalene	1.182	1.030	12.9	104	0.00
34	T,P	4-Chloroaniline	0.410	0.406	1.0	103	-0.01
35	T	2,6-Dichlorophenol	0.361	0.341	5.5	105	-0.01
36	T,P	Hexachlorobutadiene	0.272	0.247	9.2	101	0.00
37	T,P	4-Chloro-3-methylphenol	0.314	0.312	0.6	100	-0.01
38	T,P	2-Methylnaphthalene	0.843	0.723	14.2	105	0.00
39	I	Acenaphthene-d10	1.000	1.000	0.0	105	0.00
40	T,P	Hexachlorocyclopentadiene	0.413	0.461	-11.6	121	0.00
41	T,P	1,2,4,5-Tetrachlorobenzene	0.742	0.664	10.5	102	0.00
42	T,P	2,4,6-Trichlorophenol	0.518	0.539	-4.1	111	0.00
43	T,P	2,4,5-Trichlorophenol	0.477	0.412	13.6	91	-0.01
44	S	2-Fluorobiphenyl	1.588	1.416	10.8	106	0.00
45	T,P	2-Chloronaphthalene	1.765	1.698	3.8	108	-0.01
46	T,P	1-Chloronaphthalene	1.087	0.701	35.5#	84	-0.01
47	T,P	2-Nitroaniline	0.557	0.549	1.4	103	-0.01
48	T,P	Dimethyl phthalate	1.669	1.535	8.0	102	-0.02
49	T,P	2,6-Dinitrotoluene	0.413	0.423	-2.4	110	-0.02
50	T,P	Acenaphthylene	2.159	1.970	8.8	103	0.00
51	T,P	3-Nitroaniline	0.309	0.376	-21.7#	114	-0.02
52	T,P	Acenaphthene	1.226	1.066	13.1	104	-0.01
53	T,P	2,4-Dinitrophenol	0.244	0.257	-5.3	105	-0.02
54	T,P	4-Nitrophenol	0.207	0.204	1.4	98	-0.02
55	T	Pentachlorobenzene	0.608	0.541	11.0	101	0.00

(#) = Out of Range
10071110.D 100611S6.M Tue Nov 15 13:18:57 2011

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\100711\10071110.D Vial: 77
Acq On : 7 Oct 2011 9:49 am Operator: MICHAE TRUCHAN
Sample : ICV1 S6 100711 Inst : SVOC 6
Misc : ICV SW 8270A Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Oct 07 10:27:07 2011
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	T,P	2,4-Dinitrotoluene	0.502	0.483	3.8	106	-0.02
57	T,P	Dibenzofuran	1.887	1.643	12.9	101	-0.01
58	T,P	2,3,4,6-Tetrachlorophenol	0.394	0.404	-2.5	103	-0.01
59	T,P	Diethyl phthalate	1.796	1.663	7.4	101	-0.02
60	T,P	4-Chlorophenyl phenyl ether	0.712	0.651	8.6	103	-0.01
61	T,P	Fluorene	1.298	1.113	14.3	102	0.00
62	T,P	4-Nitroaniline	0.346	0.362	-4.6	102	-0.03
63	S	2,4,6-Tribromophenol	0.279	0.547	~~96.1#~~	~~191#~~	-0.01
64	I	Phenanthrene-d10	1.000	1.000	0.0	105	0.00
65	T,P	4,6-Dinitro-2-methylphenol	0.210	0.226	-7.6	106	-0.03
66	T,P	N-Nitrosodiphenylamine	1.369	0.738	~~46.1#~~	61	-0.02
67	T	Azobenzene	0.786	0.700	10.9	107	0.00
68	T,P	4-Bromophenyl phenyl ether	0.290	0.276	4.8	106	0.00
69	T,P	Hexachlorobenzene	0.328	0.315	4.0	107	0.00
70	T,P	Pentachlorophenol	0.207	0.219	-5.8	107	-0.01
71	T	Pentachloronitrobenzene	0.145	0.140	3.4	101	-0.01
72	T	n-Octadecane	0.454	0.351	~~22.7#~~	92	-0.01
73	T,P	Phenanthrene	1.341	1.170	12.8	103	0.00
74	T,P	Anthracene	1.275	1.104	13.4	102	-0.01
75	T,P	Carbazole	1.026	1.130	-10.1	120	0.00
76	T,P	Di-n-butyl phthalate	1.898	1.701	10.4	103	0.00
77	T,P	Fluoranthene	1.338	1.199	10.4	106	-0.01
78	T	Benzidine	0.060	0.786	~~1210.0#~~	742#	0.00
79	I	Chrysene-d12	1.000	1.000	0.0	104	-0.01
80	T,P	Pyrene	1.602	1.452	9.4	104	-0.01
81	S	Terphenyl-d14	1.061	0.959	9.6	103	0.00
82	T,P	Butyl benzyl phthalate	0.953	0.814	14.6	95	0.00
83	T,P	3,3'-Dichlorobenzidine	0.464	0.831	~~79.1#~~	182#	0.00
84	T,P	bis(2-Ethylhexyl) phthalate	1.246	1.148	7.9	101	0.00
85	T,P	Benz(a)anthracene	1.122	1.205	-7.4	118	0.00
86	T,P	Chrysene	1.124	0.989	12.0	102	-0.01
87	T,P	Di-n-octyl phthalate	1.997	1.949	2.4	105	0.00
88	I	Perylene-d12	1.000	1.000	0.0	108	0.00
89	T,P	Benzo(b)fluoranthene	1.411	1.391	1.4	110	-0.02
90	T,P	Benzo(k)fluoranthene	1.132	0.994	12.2	103	-0.02
91	T,P	Benzo(a)pyrene	1.214	1.137	6.3	104	-0.01
92	T,P	Indeno(1,2,3-cd)pyrene	1.152	1.108	3.8	105	-0.02
93	T,P	Dibenz(a,h)anthracene	0.923	0.863	6.5	105	-0.02
94	T,P	Benzo(g,h,i)perylene	0.886	0.861	2.8	106	-0.02

(#) = Out of Range SPCC's out = 1 CCC's out = 0
10071110.D 100611S6.M Tue Nov 15 13:18:58 2011 Page 2

4B

EPA SAMPLE NO.

MB-23239

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Lab File ID: 10071115.D Lab Sample ID: MB-23239

Instrument ID: SVOC6 Date Extracted 8/16/2011

Matrix: (soil/water) SOIL Date Analyzed: 10/7/2011

Level: (low/med) Time Analyzed 12:07

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	ZZZZZ	1108447-005A	10031109.D	10/3/2011
2	MS	1108447-005AMS	10031110.D	10/3/2011
3	MSD	1108447-005AMSD	10031111.D	10/3/2011
4	ZZZZZ	1108447-012A	10031113.D	10/3/2011
5	ZZZZZ	1108447-013A	10031114.D	10/3/2011
6	ZZZZZ	1108447-011A	10031117.D	10/3/2011
7	LCS-23239	LCS-23239	10071116.D	10/7/2011
8	DA-SS-EU32-000	1108481-003A	10071128.D	10/7/2011
9	DA-SS-EU19-000	1108481-004A	10071129.D	10/7/2011
10	A-SS-DUP04-081	1108481-005A	10071130.D	10/7/2011
11	SO-RIA33-SB04-	1108481-013A	10071117.D	10/7/2011
12	DA-SS-EU12-000	1108481-007A	10071131.D	10/7/2011
13	SO-RIA33-SB08-	1108481-014A	10071118.D	10/7/2011
14	-SO-RIA82-01A-0	1108481-008A	10071132.D	10/7/2011
15	A-SO-DUP05-081	1108481-015A	10071119.D	10/7/2011
16	-SO-RIA82-02A-0	1108481-009A	10071133.D	10/7/2011
17	SO-RIA33-SB10-	1108481-016A	10071120.D	10/7/2011
18	-SO-RIA82-03A-0	1108481-010A	10071134.D	10/7/2011
19	SO-RIA33-SB14-	1108481-017A	10071121.D	10/7/2011
20	-SO-RIA82-04A-0	1108481-011A	10071135.D	10/7/2011
21	SO-RIA33-SB02-	1108481-018A	10071122.D	10/7/2011

COMMENTS: _____

_____

page 1 of 1

FORM IV SW_8270s

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\100711\10071115.D
Acq On : 7 Oct 2011 12:07 pm
Sample : MB-23239
Misc : MBLK SW 8270A
MS Integration Params: RTEINT.P
Quant Time: Oct 7 11:23 2011

Vial: 82
Operator: MICHAE TRUCHAN
Inst : SVOC 6
Multiplr: 1.00

Quant Results File: 100611S6.RES

Quant Method : C:\HPCHEM\1\METHODS\100611S6.M (RTE Integrator)
Title : 8270D Semi-Volatile Organics
Last Update : Fri Oct 07 10:27:07 2011
Response via : Initial Calibration
DataAcq Meth : 100611S6

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	5.48	152	361767	40.00	µg/mL	-0.01
22) Naphthalene-d8	6.88	136	1116672	40.00	µg/mL	-0.01
39) Acenaphthene-d10	8.51	164	615357	40.00	µg/mL	-0.01
64) Phenanthrene-d10	9.79	188	957631	40.00	µg/mL	-0.01
79) Chrysene-d12	12.21	240	815125	40.00	µg/mL	-0.02
88) Perylene-d12	13.85	264	665056	40.00	µg/mL	-0.02
System Monitoring Compounds						
4) 2-Fluorophenol	3.85	112	194634	15.56	µg/mL	-0.02
Spiked Amount 25.000			Recovery =	62.24%		
6) Phenol-d5	4.98	99	240658	17.53	µg/mL	-0.04
Spiked Amount 25.000			Recovery =	70.12%		
23) Nitrobenzene-d5	6.12	82	217233	19.63	µg/mL	-0.03
Spiked Amount 25.000			Recovery =	78.52%		
44) 2-Fluorobiphenyl	7.90	172	428652	17.55	µg/mL	-0.01
Spiked Amount 25.000			Recovery =	70.20%		
63) 2,4,6-Tribromophenol	9.20	330	78852	18.36	µg/mL	-0.01
Spiked Amount 25.000			Recovery =	73.44%		
81) Terphenyl-d14	11.12	244	407577	18.85	µg/mL	0.00
Spiked Amount 25.000			Recovery =	75.40%		
Target Compounds						Qvalue
72) n-Octadecane	9.66	57	12811	1.18	ug/mL#	69

(#) = qualifier out of range (m) = manual integration
10071115.D 100611S6.M Tue Nov 15 13:20:05 2011

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID LCS-23239 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	662.4743292	0	490	73	45-110
1,4-Dichlorobenzene	662.4743292	0	460	69	35-105
2,4,5-Trichlorophenol	662.4743292	0	460	70	50-110
2,4,6-Trichlorophenol	662.4743292	0	550	83	45-110
2,4-Dichlorophenol	662.4743292	0	500	75	45-110
2,4-Dimethylphenol	662.4743292	0	500	75	30-105
2,4-Dinitrophenol	662.4743292	0	450	68	15-130
2,4-Dinitrotoluene	662.4743292	0	520	78	50-115
2,6-Dichlorophenol	662.4743292	0	490	75	50-130
2,6-Dinitrotoluene	662.4743292	0	570	86	50-110
2-Chloronaphthalene	662.4743292	0	370	56	45-105
2-Chlorophenol	662.4743292	0	500	76	45-105
2-Methylnaphthalene	662.4743292	0	470	70	45-105
2-Methylphenol	662.4743292	0	520	78	40-105
2-Nitroaniline	662.4743292	0	500	75	45-120
2-Nitrophenol	662.4743292	0	470	71	40-110
3,3'-Dichlorobenzidine	662.4743292	0	310	46*	50-130
3-Nitroaniline	662.4743292	0	500	75	25-110
4,6-Dinitro-2-methylphenol	662.4743292	0	530	81	30-135
4-Bromophenyl phenyl ether	662.4743292	0	510	78	50-130
4-Chloro-3-methylphenol	662.4743292	0	550	83	45-115
4-Chloroaniline	662.4743292	0	470	72	50-130
4-Chlorophenyl phenyl ether	662.4743292	0	500	76	45-110
4-Methylphenol	662.4743292	0	480	72	40-105
4-Nitroaniline	662.4743292	0	440	66	35-115
4-Nitrophenol	662.4743292	0	540	81	15-140
Acenaphthene	662.4743292	0	490	74	45-110
Acenaphthylene	662.4743292	0	480	72	45-105
Aniline	662.4743292	0	360	54	50-130
Anthracene	662.4743292	0	470	71	55-105

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID LCS-23239 Level: (low/med) LOW

Benz(a)anthracene	662.4743292	0	590	89	50-110
Benzo(a)pyrene	662.4743292	0	520	78	50-110
Benzo(b)fluoranthene	662.4743292	0	550	83	45-115
Benzo(g,h,i)perylene	662.4743292	0	500	75	40-125
Benzo(k)fluoranthene	662.4743292	0	550	84	45-125
Benzyl alcohol	662.4743292	0	590	90	20-125
Bis(2-chloroethoxy)methane	662.4743292	0	520	78	45-110
Bis(2-chloroethyl) ether	662.4743292	0	470	71	40-105
Bis(2-chloroisopropyl) ether	662.4743292	0	600	91	20-115
Bis(2-ethylhexyl) phthalate	662.4743292	0	560	84	45-125
Butyl benzyl phthalate	662.4743292	0	550	83	50-125
Carbazole	662.4743292	0	570	86	45-115
Chrysene	662.4743292	0	500	76	55-110
Dibenz(a,h)anthracene	662.4743292	0	540	81	40-125
Dibenzofuran	662.4743292	0	480	73	50-105
Diethyl phthalate	662.4743292	0	510	77	50-115
Dimethyl phthalate	662.4743292	0	530	80	50-110
Di-n-butyl phthalate	662.4743292	0	530	79	55-110
Di-n-octyl phthalate	662.4743292	0	590	89	40-130
Fluoranthene	662.4743292	0	520	78	55-115
Fluorene	662.4743292	0	500	75	50-110
Hexachlorobenzene	662.4743292	0	550	83	45-120
Hexachlorobutadiene	662.4743292	0	470	70	40-115
Hexachlorocyclopentadiene	662.4743292	0	570	87	40-130
Hexachloroethane	662.4743292	0	500	75	35-110
Indeno(1,2,3-cd)pyrene	662.4743292	0	540	82	40-120
Isophorone	662.4743292	0	480	72	45-110
Naphthalene	662.4743292	0	470	71	40-105
Nitrobenzene	662.4743292	0	490	74	40-115
N-Nitrosodiethylamine	662.4743292	0	530	81	40-130
N-Nitrosodimethylamine	662.4743292	0	500	75	20-115
~~N-Nitrosodiphenylamine~~	~~662.4743292~~	0	260	~~40*~~	50-115
N-nitrosodipropylamine	662.4743292	0	540	81	50-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

FORM III SW8270C

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID LCS-23239 Level: (low/med) LOW

Pentachlorophenol	662.4743292	0	550	83	25-120
Phenanthrene	662.4743292	0	490	74	50-110
Phenol	662.4743292	0	500	75	40-100
Pyrene	662.4743292	0	510	78	45-125
Pyridine	662.4743292	0	130	~~20*~~	40-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 3 out of 68 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	710	0	600	83	45-110
1,4-Dichlorobenzene	710	0	570	80	35-105
2,4,5-Trichlorophenol	710	0	670	94	50-110
2,4,6-Trichlorophenol	710	0	660	93	45-110
2,4-Dichlorophenol	710	0	650	92	45-110
2,4-Dimethylphenol	710	0	640	90	30-105
2,4-Dinitrophenol	710	0	540	75	15-130
2,4-Dinitrotoluene	710	0	650	91	50-115
2,6-Dinitrotoluene	710	0	620	87	50-110
2-Chloronaphthalene	710	0	540	75	45-105
2-Chlorophenol	710	0	610	85	45-105
2-Methylnaphthalene	710	0	630	89	45-105
2-Methylphenol	710	0	620	87	40-105
2-Nitroaniline	710	64	620	78	45-120
2-Nitrophenol	710	0	620	87	40-110
3,3'-Dichlorobenzidine	710	0	250	35*	50-130
3-Nitroaniline	710	0	600	84	25-110
4,6-Dinitro-2-methylphenol	710	0	480	67	30-135
4-Bromophenyl phenyl ether	710	0	670	94	50-130
4-Chloro-3-methylphenol	710	0	660	93	45-115
4-Chloroaniline	710	0	540	76	50-130
4-Chlorophenyl phenyl ether	710	0	670	94	45-110
4-Methylphenol	710	0	620	87	40-105
4-Nitroaniline	710	0	450	63	35-115
4-Nitrophenol	710	0	550	78	15-140
Acenaphthene	710	0	650	91	45-110
Acenaphthylene	710	0	640	90	45-105
Aniline	710	0	430	61	50-130
Anthracene	710	0	640	90	55-105
Benz(a)anthracene	710	0	660	93	50-110
Benzo(a)pyrene	710	0	670	95	50-110

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits

Spike Recovery: 4 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level: (low/med) LOW

Benzo(b)fluoranthene	710	7.8	720	99	45-115
Benzo(g,h,i)perylene	710	0	600	84	40-125
Benzo(k)fluoranthene	710	0	690	96	45-125
Benzyl alcohol	710	0	690	97	20-125
Bis(2-chloroethoxy)methane	710	0	650	90	45-110
Bis(2-chloroethyl) ether	710	0	620	87	40-105
Bis(2-chloroisopropyl) ether	710	0	630	88	20-115
Bis(2-ethylhexyl) phthalate	710	0	770	108	45-125
Butyl benzyl phthalate	710	0	750	105	50-125
Carbazole	710	0	580	81	45-115
Chrysene	710	0	680	95	55-110
Dibenz(a,h)anthracene	710	0	640	89	40-125
Dibenzofuran	710	0	640	90	50-105
Diethyl phthalate	710	0	680	96	50-115
Dimethyl phthalate	710	0	670	94	50-110
Di-n-butyl phthalate	710	0	700	98	55-110
Di-n-octyl phthalate	710	0	780	110	40-130
Fluoranthene	710	7.8	680	94	55-115
Fluorene	710	0	670	94	50-110
Hexachlorobenzene	710	0	640	90	45-120
Hexachlorobutadiene	710	0	600	84	40-115
~~Hexachlorocyclopentadiene~~	710	0	260	~~36*~~	40-130
Hexachloroethane	710	0	550	77	35-110
Indeno(1,2,3-cd)pyrene	710	0	630	89	40-120
Isophorone	710	0	580	81	45-110
Naphthalene	710	0	610	85	40-105
Nitrobenzene	710	0	610	86	40-115
N-Nitrosodiethylamine	710	0	630	89	40-130
N-Nitrosodimethylamine	710	0	610	85	20-115
N-Nitrosodiphenylamine	710	0	540	76	50-115
N-nitrosodipropylamine	710	0	680	96	50-115
Pentachlorophenol	710	0	830	116	25-120
Phenanthrene	710	0	650	91	50-110
Phenol	710	0	630	88	40-100

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits

Spike Recovery: 4 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level: (low/med) LOW

Pyrene	710	0	700	98	45-125
Pyridine	710	0	520	73	40-130

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,2,4-Trichlorobenzene	710	570	79	5	25	45-110
1,4-Dichlorobenzene	710	540	77	5	25	35-105
2,4,5-Trichlorophenol	710	630	89	6	25	50-110
2,4,6-Trichlorophenol	710	630	88	5	25	45-110
2,4-Dichlorophenol	710	610	86	6	25	45-110
2,4-Dimethylphenol	710	610	85	5	25	30-105
2,4-Dinitrophenol	710	540	76	0	25	15-130
2,4-Dinitrotoluene	710	630	89	3	25	50-115
2,6-Dinitrotoluene	710	600	84	3	25	50-110
2-Chloronaphthalene	710	500	70	7	25	45-105
2-Chlorophenol	710	570	80	7	25	45-105
2-Methylnaphthalene	710	590	83	7	25	45-105
2-Methylphenol	710	580	81	7	25	40-105
2-Nitroaniline	710	590	74	5	25	45-120
2-Nitrophenol	710	590	84	5	25	40-110
3,3'-Dichlorobenzidine	710	0	0*	200*	25	50-130
3-Nitroaniline	710	560	79	6	25	25-110
4,6-Dinitro-2-methylphenol	710	480	68	0	25	30-135
4-Bromophenyl phenyl ether	710	630	89	6	25	50-130
4-Chloro-3-methylphenol	710	620	88	6	25	45-115
4-Chloroaniline	710	480	67	12	25	50-130
4-Chlorophenyl phenyl ether	710	630	89	6	25	45-110
4-Methylphenol	710	580	82	6	25	40-105
4-Nitroaniline	710	430	60	4	25	35-115
4-Nitrophenol	710	510	71	9	25	15-140
Acenaphthene	710	600	85	7	25	45-110
Acenaphthylene	710	600	84	7	25	45-105

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits

Spike Recovery: 4 out of 134 outside limits

COMMENTS:

FORM III SW8270C

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level:(low/med) LOW

Aniline	710	410	57	6	25	50-130
Anthracene	710	610	86	5	25	55-105
Benz(a)anthracene	710	640	90	4	25	50-110
Benzo(a)pyrene	710	650	91	4	25	50-110
Benzo(b)fluoranthene	710	680	95	5	25	45-115
Benzo(g,h,i)perylene	710	570	81	4	25	40-125
Benzo(k)fluoranthene	710	660	92	4	25	45-125
Benzyl alcohol	710	650	91	7	25	20-125
Bis(2-chloroethoxy)methane	710	600	84	8	25	45-110
Bis(2-chloroethyl) ether	710	580	81	7	25	40-105
Bis(2-chloroisopropyl) ether	710	590	83	6	25	20-115
Bis(2-ethylhexyl) phthalate	710	740	105	4	25	45-125
Butyl benzyl phthalate	710	720	101	4	25	50-125
Carbazole	710	560	79	3	25	45-115
Chrysene	710	640	91	6	25	55-110
Dibenz(a,h)anthracene	710	610	86	4	25	40-125
Dibenzofuran	710	610	85	6	25	50-105
Diethyl phthalate	710	650	91	6	25	50-115
Dimethyl phthalate	710	640	90	6	25	50-110
Di-n-butyl phthalate	710	670	94	4	25	55-110
Di-n-octyl phthalate	710	750	105	4	25	40-130
Fluoranthene	710	650	90	4	25	55-115
Fluorene	710	640	89	6	25	50-110
Hexachlorobenzene	710	620	87	4	25	45-120
Hexachlorobutadiene	710	560	78	7	25	40-115
~~Hexachlorocyclopentadiene~~	710	260	~~36~~	1	25	40-130
Hexachloroethane	710	520	73	6	25	35-110
Indeno(1,2,3-cd)pyrene	710	610	85	4	25	40-120
Isophorone	710	540	76	7	25	45-110
Naphthalene	710	560	79	7	25	40-105
Nitrobenzene	710	570	80	7	25	40-115
N-Nitrosodiethylamine	710	600	84	6	25	40-130
N-Nitrosodimethylamine	710	570	80	7	25	20-115
N-Nitrosodiphenylamine	710	510	71	6	25	50-115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits

Spike Recovery: 4 out of 134 outside limits

COMMENTS:

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level: (low/med) LOW

N-nitrosodipropylamine	710	640	90	7	25	50-115
Pentachlorophenol	710	820	115	1	25	25-120
Phenanthrene	710	620	87	6	25	50-110
Phenol	710	590	83	7	25	40-100
Pyrene	710	670	94	5	25	45-125
Pyridine	710	440	62	17	25	40-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 67 outside limits

Spike Recovery: 4 out of 134 outside limits

COMMENTS:

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108481

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (2FP) #	SMC2 (FBP) #	SMC3 (NBZ) #	SMC4 (PHL) #	SMC5 (TBP) #	SMC6 (TPH) #			TOT OUT
01	MS	82	84	85	86	102	92			0
02	MSD	76	80	80	80	98	89			0
03	MB-23239	62	70	79	70	73	75			0
04	LCS-23239	67	67	75	74	80	76			0
05	IOA-SS-EU32-0002		78	87			99			0
06	IOA-SS-EU19-0002		75	82			107			0
07	IOA-SS-DUP04-08111		64	74			91			0
08	IOA-SO-RIA33-SB04-		68	72			78			0
09	IOA-SS-EU12-0002		83	81			101			0
10	IOA-SO-RIA33-SB08-		60	63			70			0
11	IOA-SO-RIA82-01A-0		63	67			87			0
12	IOA-SO-DUP05-08151		58	60			73			0
13	IOA-SO-RIA82-02A-0		62	74			94			0
14	IOA-SO-RIA33-SB10-		67	68			88			0
15	IOA-SO-RIA82-03A-0		65	70			83			0
16	IOA-SO-RIA33-SB14-		75	79			92			0
17	IOA-SO-RIA82-04A-0		76	81			100			0
18	IOA-SO-RIA33-SB02-		69	73			84			0

			QC Limit
SMC 1	(2FP)	= 2-Fluorophenol	35-105
SMC 2	(FBP)	= 2-Fluorobiphenyl	45-105
SMC 3	(NBZ)	= Nitrobenzene-d5	35-100
SMC 4	(PHL)	= Phenol-d5	40-100
SMC 5	(TBP)	= 2,4,6-Tribromophenol	35-125
SMC 6	(TPH)	= Terphenyl-d14	30-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\2\DATA\100711\10071101.D
Tune Time : 7 Oct 2011 9:30 am

Daily Calibration File : C:\HPCHEM\2\DATA\100711\10071108.D

					715213	2382810	1355840
					2182350	1873710	1532630
File	Sample	Surrogate Recovery %			Internal Standard Responses		
10071101.D	TUNE1 S5	0	0	0	0*	0*	150*
		0	60*		2619*	3522*	3404*
10071102.D	1ug/mL S	5*	5*	5*	696051	2338481	1292862
		4*	5*		2028539	1973584	1783605
10071103.D	2.5ug/mL	13*	13*	13*	701068	2357914	1321806
		11*	12*		2095825	2087237	1890595
10071104.D	5ug/mL S	26*	26*	26*	688572	2287791	1287366
		23*	25*		2030616	2020777	1811665
10071105.D	10ug/mL	53*	52*	51*	709097	2353460	1329414
		45*	49*		2123596	1948571	1512989
10071106.D	15ug/mL	79*	77*	75*	701183	2326357	1314057
		66*	69*		2123696	1940284	1580227
10071107.D	20ug/mL	104*	103*	98*	698980	2356309	1328809
		89*	90*		2160866	1932423	1545540
10071108.D	25ug/mL	125*	123*	119*	715213	2382814	1355835
		107*	110*		2182353	1873711	1532628
10071109.D	50ug/mL	236*	234*	225*	688718	2334678	1337777
		208*	204*		2140976	1708635	1324316
10071110.D	ICV S5 1	175*	191*	93*	766589	2616480	1492352
		188*	95*		2367247	1971258	1544786
10071111.D	RLVS1 S5	89*	89*	92*	783564	2615793	1490334
		92*	80*		2343414	2247141	1775205
10071112.D	MB-23545	34*	21*	67*	778121	2702261	1526665
		76*	77*		2360501	2174667	1672939
10071113.D	LCS-2354	38*	24*	68*	791438	2710516	1543713
		86*	78*		2450141	2159068	1774691
10071114.D	LCSD-235	38*	24*	69*	796953	2755851	1561218
		87*	84*		2501067	2196409	1840885
10071115.D	1108257-	1*	1*	1*	810240	2696855	1485307
		1*	1*		2276264	1700244	1089941
10071116.D	1109174-	3*	4*	3*	551243	1903144	1088675
		5*	8*		1734166	1335779	908934
10071117.D	1108481-	69*	75*	72*	825041	2828349	1604691
		79*	78*		2459628	2178000	1515037
10071118.D	1108481-	59*	66*	63*	885111	3015857	1755252
		75*	70*		2732495	2525679	1832007
10071119.D	1108481-	56*	60*	60*	894505	3019206	1724501
		72*	73*		2671092	2276627	1496651
10071120.D	1108481-	64*	71*	68*	886910	3018776	1708266
		83*	88*		2607021	1874831	1121502
10071121.D	1108481-	75*	82*	79*	827776	2837358	1599043
		91*	92*		2470816	1952207	1203631
10071122.D	1108481-	70*	75*	73*	897748	3058929	1732270
		77*	84*		2629073	1753758	1111780
10071123.D	1109068-	37*	24*	65*	833176	2942150	1660083
		78*	81*		2504329	2066029	1311245

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GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\100711\10071101.D
Tune Time : 7 Oct 2011 8:26 am

Daily Calibration File : C:\HPCHEM\1\DATA\100611\10061108.D

						304322	944838	519042
						773599	661782	552657
File	Sample	Surrogate Recovery %				Internal Standard Responses		
10071110.D	ICV1 S6	158*	175*	93*	89*	334929	1000950	545594
		196*	90*			813489	686047	597407
10071111.D	RLVS S6	76*	81*	86*	75*	387069	1187111	646138
		86*	78*			970818	825774	692920
10071112.D	MB-23823	58*	58*	68*	60*	413830	1327517	705075
		72*	75*			1059841	834936	635262
10071113.D	LCS-2382	57*	41*	71*	46*	403569	1210035	654257
		64*	70*			747313	714053	610605
10071114.D	LCSD-238	58*	48*	65*	51*	417985	1253133	681688
		73*	75*			987417	764968	646507
10071115.D	MB-23239	62*	70*	79*	70*	361767	1116672	615357
		73*	75*			957631	815125	665056
10071116.D	LCS-2323	67*	74*	75*	67*	367880	1155957	657644
		80*	76*			963210	805784	673541
10071117.D	1109386-	1*	1*	18*	16*	339508	1104559	609578
		6*	18*			928265	734621	599089
10071118.D	1109386-	12*	11*	1*	14*	361075	1127491	624461
		13*	16*			992473	771114	605428
10071119.D	1109445-	61*	69*	71*	63*	331219	1048098	566922
		72*	71*			862886	670351	455109
10071120.D	1109445-	61*	72*	72*	66*	325326	1030453	563047
		74*	76*			871879	705829	552781
10071121.D	1109445-	16*	17*	17*	17*	338932	1085976	586429
		16*	17*			918153	683710	464647
10071122.D	1109445-	62*	70*	74*	69*	340708	1076967	583437
		88*	87*			892107	674523	468038
10071123.D	1109429-	53*	60*	59*	56*	339971	1067446	570076
		87*	78*			880158	681213	485488
10071124.D	1109429-	63*	69*	71*	63*	342173	1070866	577385
		93*	91*			872282	625524	415878
10071125.D	1109429-	70*	79*	78*	68*	332650	1067729	593731
		85*	84*			853588	633969	379684
10071126.D	1109445-	15*	17*	17*	18*	345458	1082223	572385
		10*	22*			871415	592905	320388
10071127.D	1109445-	12*	14*	14*	15*	334201	1051350	548375
		9*	19*			833066	513801	290833
10071128.D	1108481-	79*	89*	87*	78*	354617	1147708	633726
		92*	99*			937059	629223	384761
10071129.D	1108481-	74*	81*	82*	75*	357847	1155584	629334
		86*	107*			919936	528401	293391
10071130.D	1108481-	66*	74*	74*	64*	373545	1207839	680770
		87*	91*			1000456	654051	384102
10071131.D	1108481-	15*	15*	16*	17*	382940	1212804	645814

	12*	20*			992901	624404	345042
10071132.D 1108481-	65*	74*	67*	63*	371891	1220705	677432
	75*	87*			955664	633986	342200
10071133.D 1108481-	70*	79*	74*	62*	373159	1203034	665515
	82*	94*			992398	616557	327621
10071134.D 1108481-	68*	74*	70*	65*	359637	1175015	644355
	75*	83*			974026	656077	404689
10071135.D 1108481-	77*	84*	81*	76*	353440	1109316	609831
	84*	100*			897867	604407	344511
10071136.D RLVS S6	86*	85*	83*	71*	382684	1197126	666910
	84*	88*			1011420	660503	331664

t - fails 12hr time check * - fails criteria

Created: Tue Nov 15 13:25:12 2011 SVOC 6

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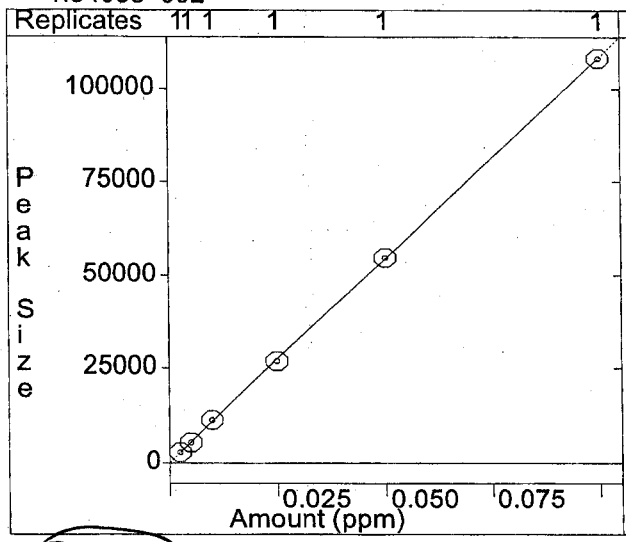
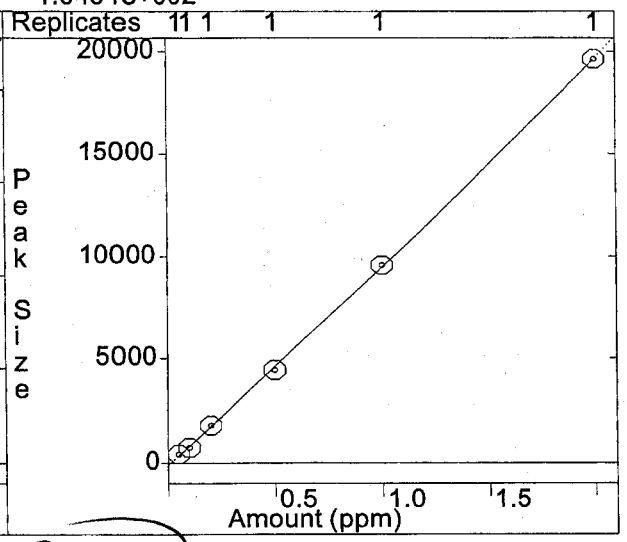
Aroclor Cal. Channel A

Print Date: 27 Sep 2011 18:03:56
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

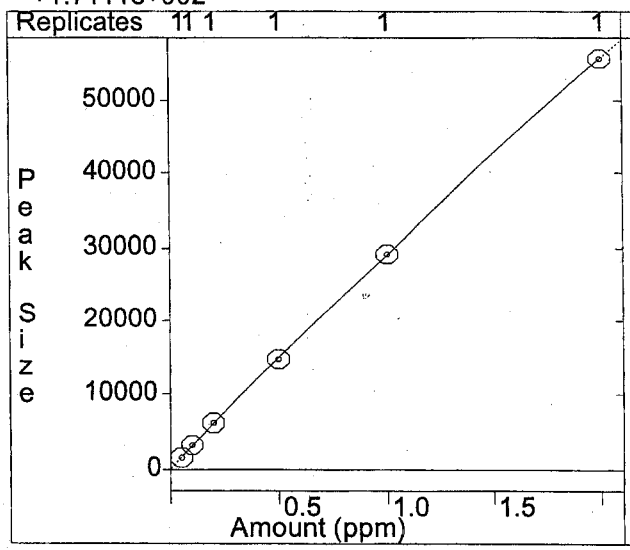
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 3.562%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999928
$y = -1.1185e+005x^2 + 1.0917e+006x + 1.5408e+002$



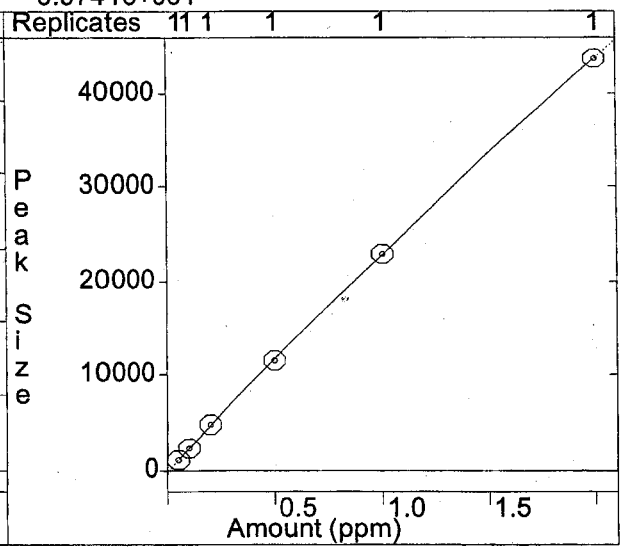
A1016-1
External Standard Analysis
Resp. Fact. RSD: 8.582%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999814
$y = +2.9861e+002x^2 + 9.2807e+003x - 1.0484e+002$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.160%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999963
$y = -1.1339e+003x^2 + 3.0062e+004x + 1.7111e+002$

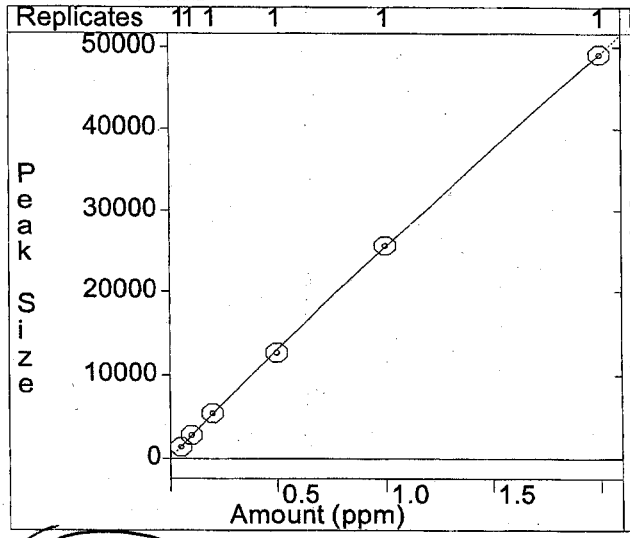


A1016-3
External Standard Analysis
Resp. Fact. RSD: 3.248%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999959
$y = -1.0395e+003x^2 + 2.4018e+004x - 5.9741e+001$

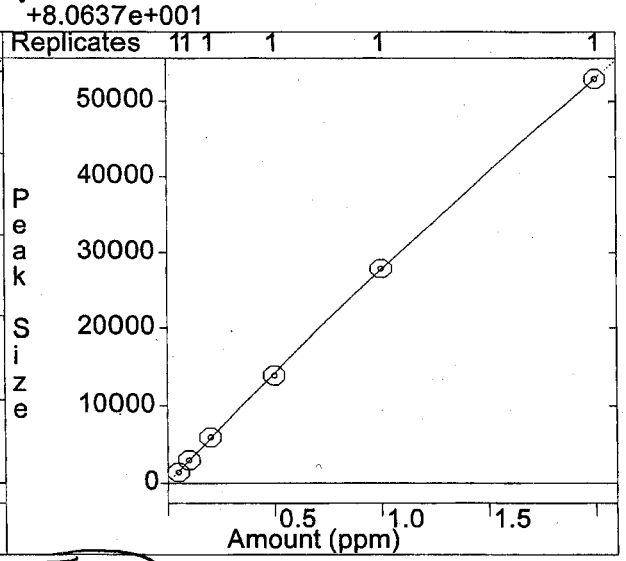


Print Date: 27 Sep 2011 18:03:57
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

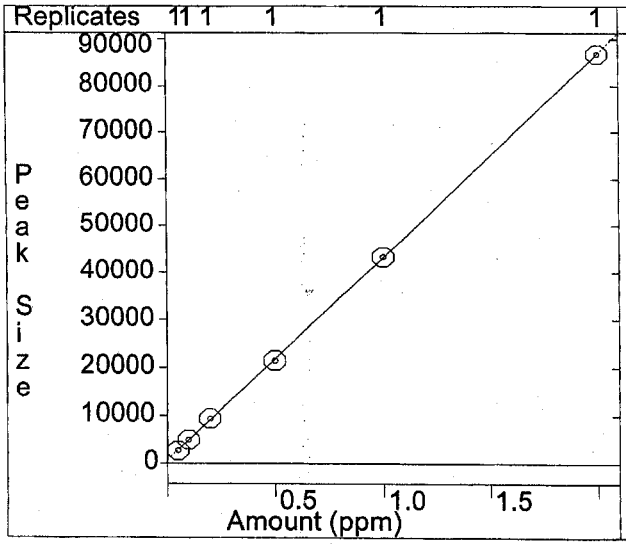
A1016-4
External Standard Analysis
Resp. Fact. RSD: 6.389%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999910
$y = -8.5164e+002x^2 + 2.6185e+004x + 1.6105e+002$



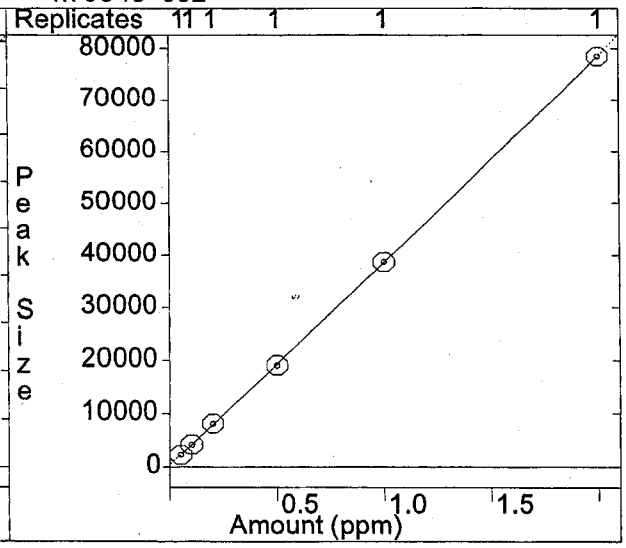
A1016-5
External Standard Analysis
Resp. Fact. RSD: 4.862%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999940
$y = -1.2161e+003x^2 + 2.8852e+004x + 8.0637e+001$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 9.147%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999953
$y = +6.0975e+002x^2 + 4.1867e+004x + 7.2187e+002$

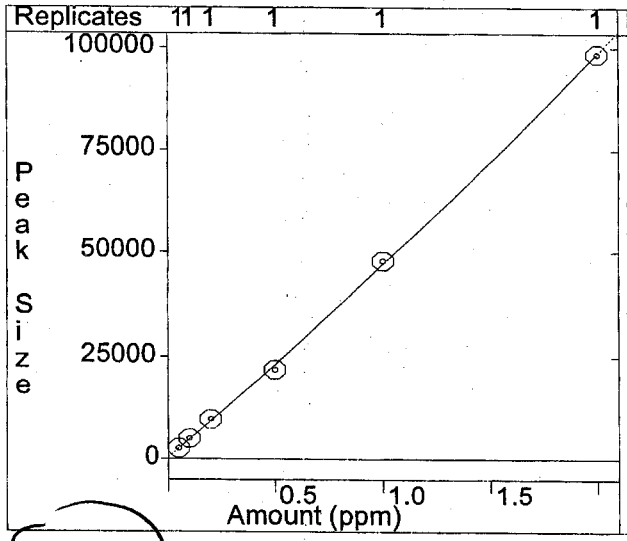


A1260-2
External Standard Analysis
Resp. Fact. RSD: 6.644%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999979
$y = +8.6012e+002x^2 + 3.7295e+004x + 4.7504e+002$

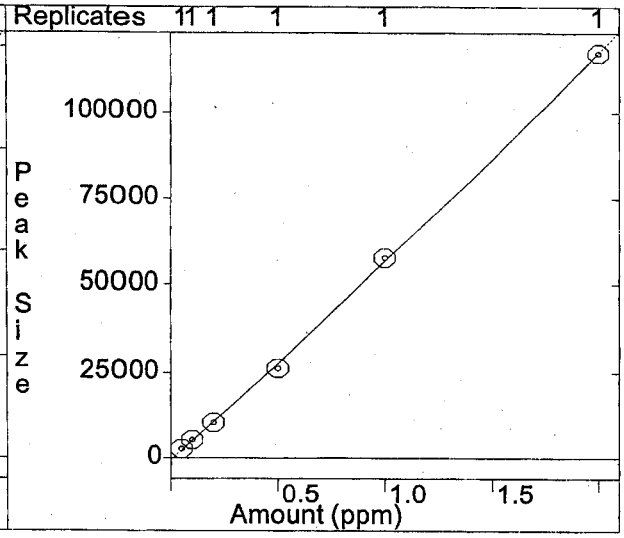


Print Date: 27 Sep 2011 18:03:58
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

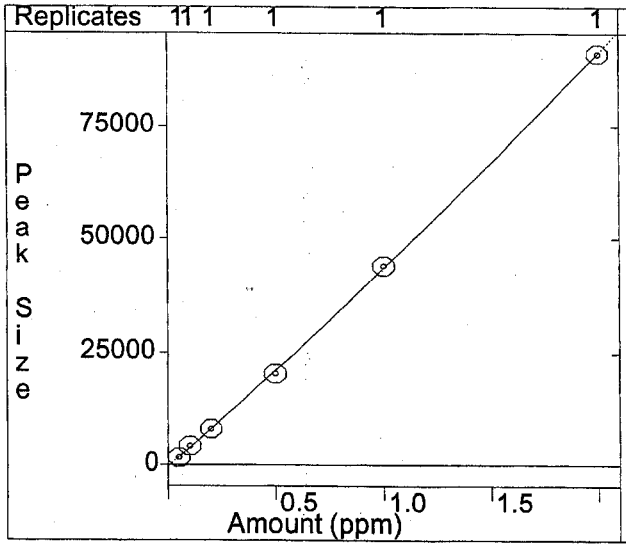
A1260-3
External Standard Analysis
Resp. Fact. RSD: 5.636%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999673
$y = +2.4316e+003x^2 +4.4260e+004x +3.6072e+002$



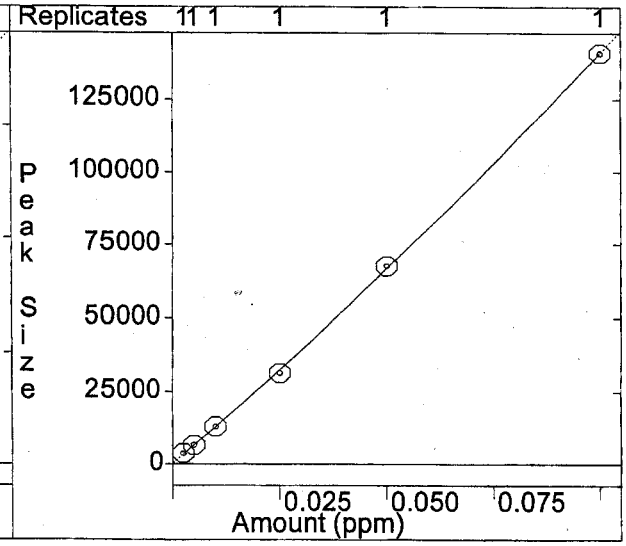
A1260-4
External Standard Analysis
Resp. Fact. RSD: 5.157%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999713
$y = +1.8833e+003x^2 +5.5211e+004x -5.1377e+002$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 11.30%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999869
$y = +2.1107e+003x^2 +4.1717e+004x -3.6966e+002$



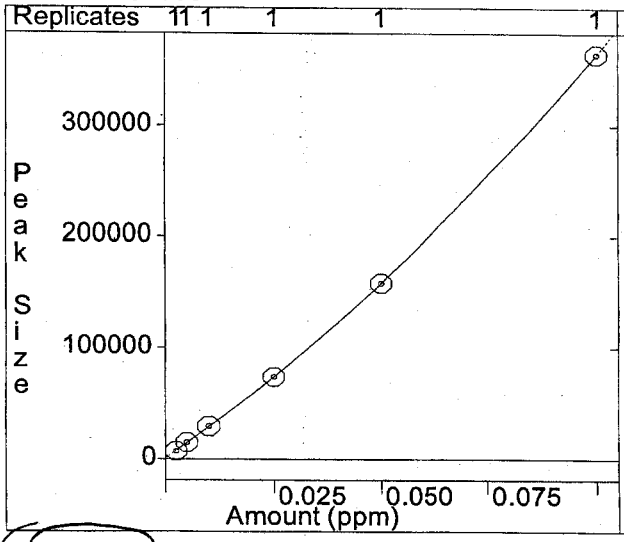
DCB-surr
External Standard Analysis
Resp. Fact. RSD: 6.676%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999868
$y = +1.5949e+006x^2 +1.2510e+006x +3.0160e+002$



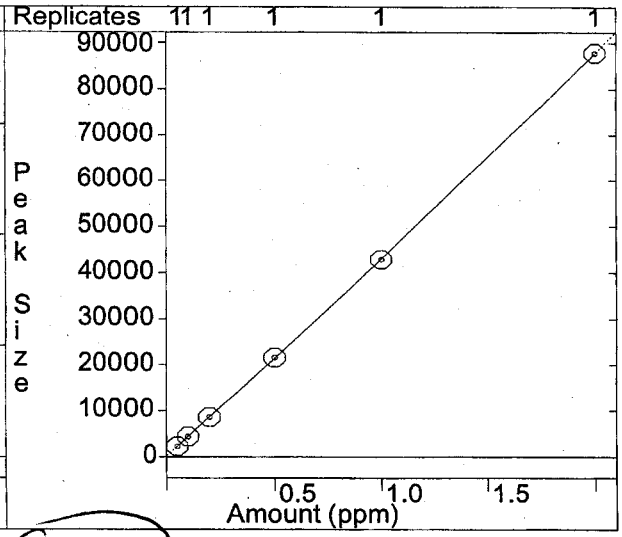
CAL. Channel B

Print Date: 27 Sep 2011 18:03:38
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20 Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

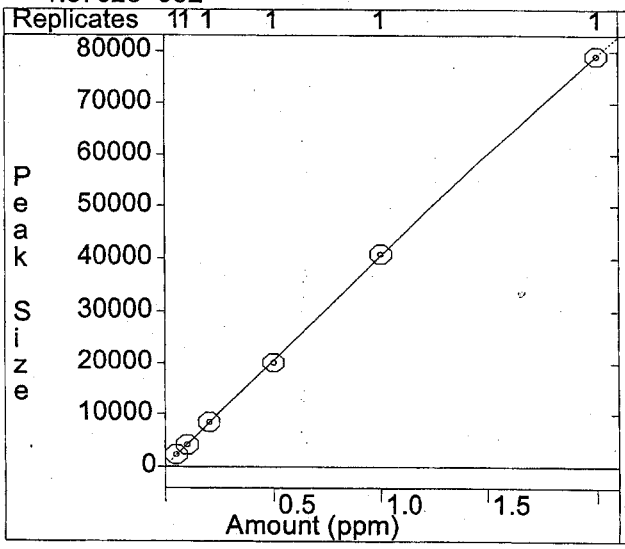
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 8.837%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999990
$y = +9.6147e+006x^2 +2.6665e+006x +1.2801e+003$



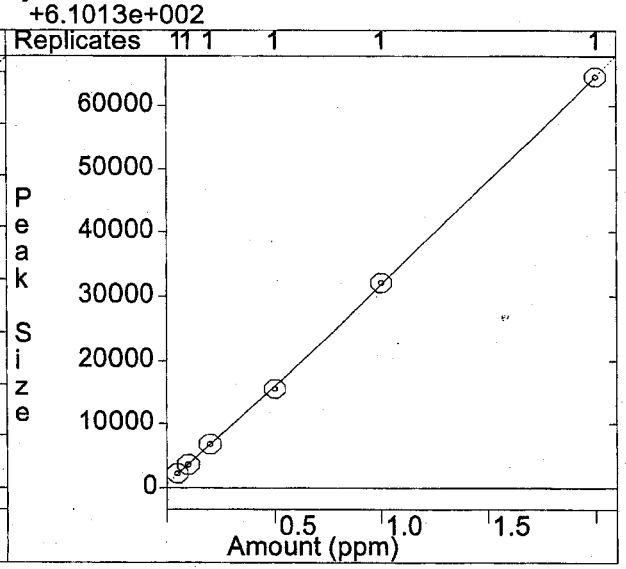
A1016-1
External Standard Analysis
Resp. Fact. RSD: 2.993%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999991
$y = +9.4887e+002x^2 +4.1878e+004x +2.5138e+002$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.418%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999933
$y = -9.0315e+002x^2 +4.1304e+004x +1.5762e+002$

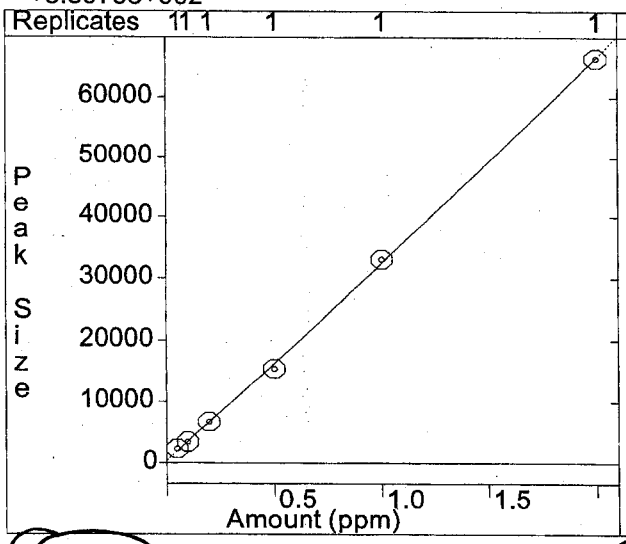


A1016-3
External Standard Analysis
Resp. Fact. RSD: 15.11%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999907
$y = +7.9697e+002x^2 +3.0416e+004x +6.1013e+002$

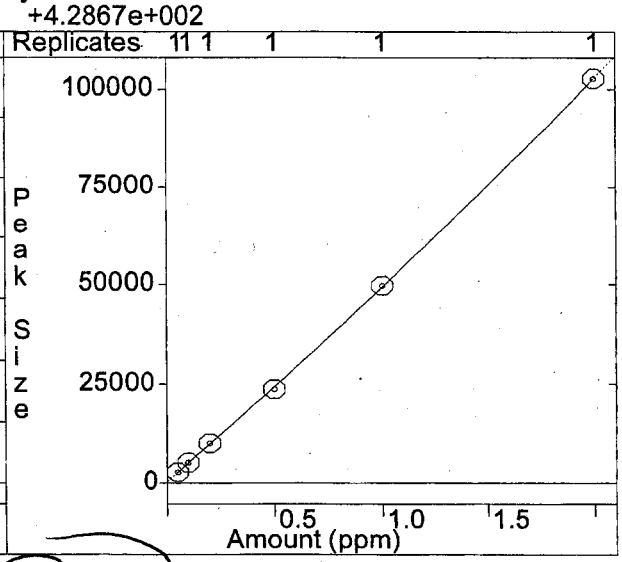


Print Date: 27 Sep 2011 18:03:39
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

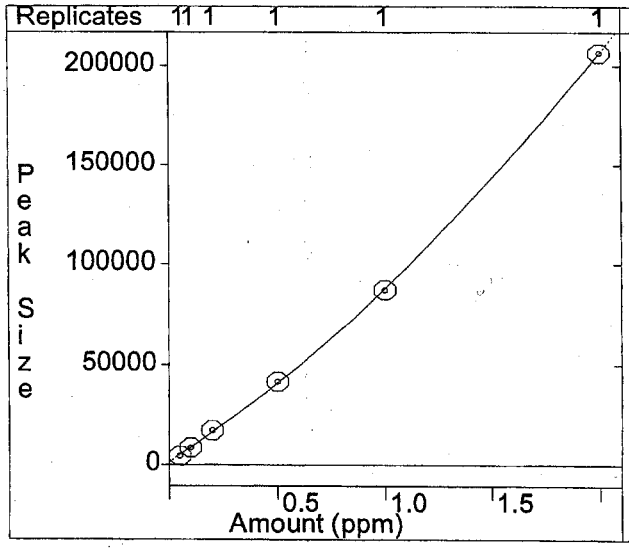
A1016-4
External Standard Analysis
Resp. Fact. RSD: 16.37%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999603
$y = +9.0453e+002x^2 +3.1221e+004x +3.8978e+002$



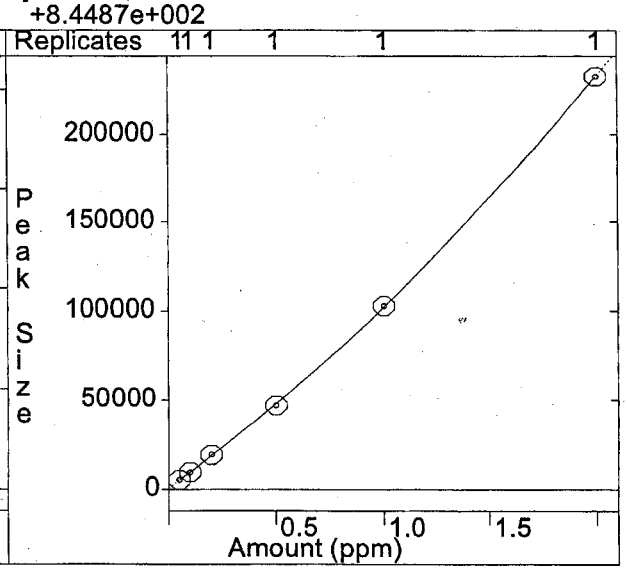
A1016-5
External Standard Analysis
Resp. Fact. RSD: 5.620%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999934
$y = +2.2467e+003x^2 +4.6668e+004x +4.2867e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 8.275%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999942
$y = +1.5881e+004x^2 +7.0653e+004x +1.5197e+003$

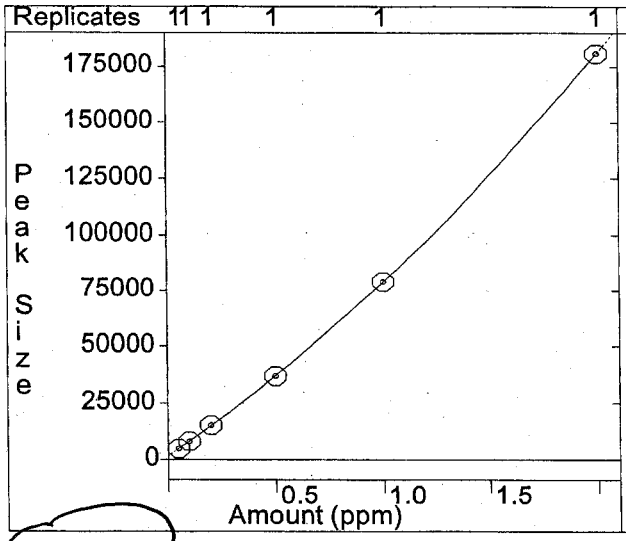


A1260-2
External Standard Analysis
Resp. Fact. RSD: 8.172%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999957
$y = +1.4481e+004x^2 +8.7025e+004x +8.4487e+002$

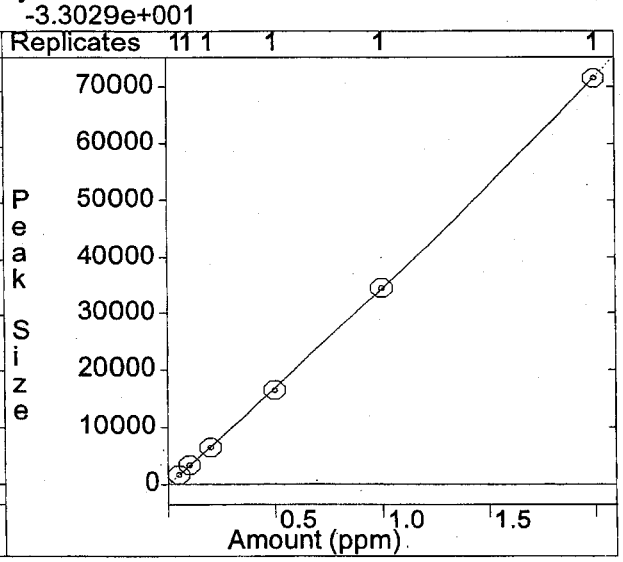


Print Date: 27 Sep 2011 18:03:39
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B
Analysis File: d:\... \module 20ecd\08-2011\0818-pcb\1108481-006a.run

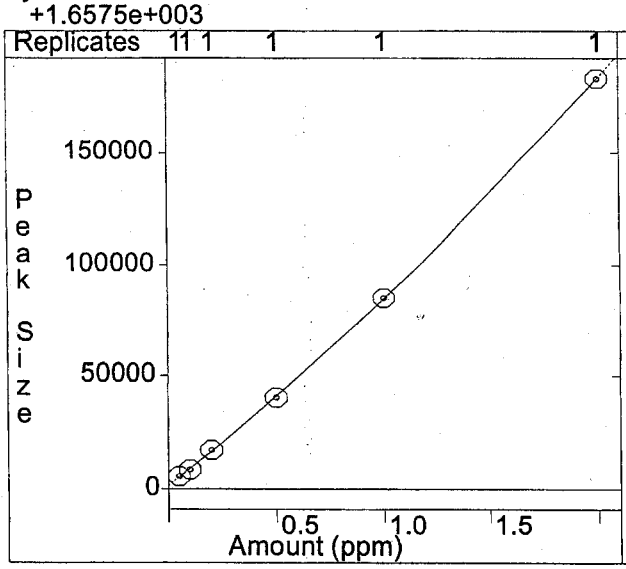
A1260-3
External Standard Analysis
Resp. Fact. RSD: 10.46%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999995
$y = +1.2300e+004x^2 +6.5042e+004x +1.5315e+003$



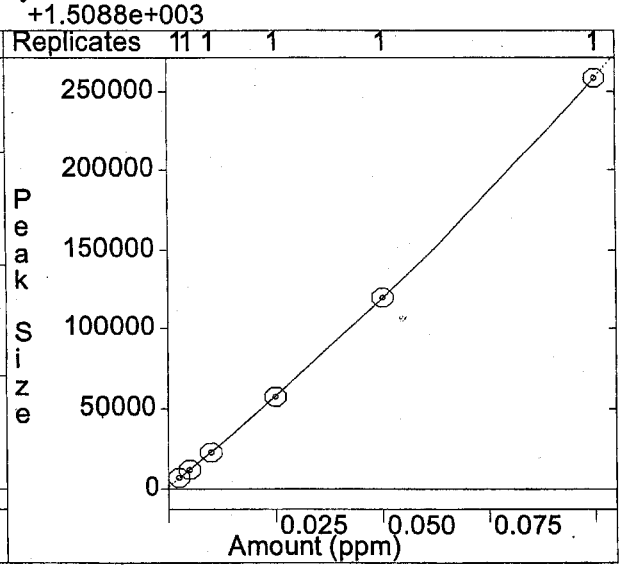
A1260-4
External Standard Analysis
Resp. Fact. RSD: 3.395%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999954
$y = +1.4469e+003x^2 +3.2896e+004x -3.3029e+001$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 13.17%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999949
$y = +8.1429e+003x^2 +7.4934e+004x +1.6575e+003$



DCB-surr
External Standard Analysis
Resp. Fact. RSD: 9.058%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999991
$y = +4.2985e+006x^2 +2.1428e+006x +1.5088e+003$



RTI Laboratories

Run ID: GC-ECD 1_110818A **Run No.:** 42416

Analytical Run Date: 8/18/2011 **InstrumentID:** GC-ECD 1

Analyst: Mike Budzlak **Column:** GC-ECD 1-Primary

Calibration ID: **Column ID:** 0.53mm 0.42um cat11340ser

Column Length: 30m

SampID	TestCode	SampType	Batch ID	Analysis Date/Time	QA By	Q	Comments
icb	SW_8082S	ICB	R42416	8/18/2011 7:48:24 PM	Robert Lynch		
crql pcb 0.05ppm a	SW_8082S	CRQL	R42416	8/18/2011 8:12:38 PM	Robert Lynch		
ccv pcb 1ppm a	SW_8082S	CCV	R42416	8/18/2011 8:36:48 PM	Robert Lynch		
1108257-007a	SW_8082S	SAMP	23223	8/18/2011 9:01:38 PM	Robert Lynch		Surrogate and MS/MSD diluted out. Chromatogram mislabeled as 1-20 dilution.
1108257-008a	SW_8082S	SAMP	23223	8/18/2011 9:25:53 PM	Robert Lynch		
1108257-009a	SW_8082S	SAMP	23223	8/18/2011 9:50:04 PM	Robert Lynch		Surrogate diluted out.
1108257-010a	SW_8082S	SAMP	23223	8/18/2011 10:14:19 PM	Robert Lynch		Surrogate diluted out.
1108257-011a	SW_8082S	SAMP	23223	8/18/2011 10:38:31 PM	Robert Lynch		
1108257-012a	SW_8082S	SAMP	23223	8/18/2011 11:02:44 PM	Robert Lynch		
1108257-014a	SW_8082S	SAMP	23223	8/18/2011 11:51:05 PM	Robert Lynch		
1108257-015a	SW_8082S	SAMP	23223	8/19/2011 12:15:16 AM	Robert Lynch		Surrogate diluted out.
1108257-016a	SW_8082S	SAMP	23223	8/19/2011 12:39:28 AM	Robert Lynch		
ccb b	SW_8082S	CCB	R42416	8/19/2011 1:03:48 AM	Robert Lynch		
crql pcb 0.05ppm b	SW_8082S	CRQL	R42416	8/19/2011 1:28:02 AM	Robert Lynch		
ccv pcb 1ppm b	SW_8082S	CCV	R42416	8/19/2011 1:52:10 AM	Robert Lynch		
1108257-017a	SW_8082S	SAMP	23223	8/19/2011 2:16:37 AM	Robert Lynch		
1108257-018a	SW_8082S	SAMP	23223	8/19/2011 2:40:43 AM	Robert Lynch		
1108257-019a	SW_8082S	SAMP	23223	8/19/2011 3:04:56 AM	Robert Lynch		Surrogate diluted out. All reported peaks are within calibration range.
lcs-23260	SW_8082S	LCS	23260	8/19/2011 3:29:11 AM	Robert Lynch		
mb-23260	SW_8082S	MBLK	23260	8/19/2011 3:53:17 AM	Robert Lynch		
1108447-003b	SW_8082S	SAMP	23260	8/19/2011 4:17:33 AM	Robert Lynch		
1108447-004b	SW_8082S	SAMP	23260	8/19/2011 4:41:42 AM	Robert Lynch		
1108447-005b	SW_8082S	SAMP	23260	8/19/2011 5:05:52 AM	Robert Lynch		
1108447-005bms	SW_8082S	MS	23260	8/19/2011 5:29:56 AM	Robert Lynch		
1108447-005bmsd	SW_8082S	MSD	23260	8/19/2011 5:54:10 AM	Robert Lynch		
1108447-006b	SW_8082S	SAMP	23260	8/19/2011 6:18:23 AM	Robert Lynch		
ccb c	SW_8082S	CCB	R42416	8/19/2011 6:42:27 AM	Robert Lynch		
crql pcb 0.05ppm c	SW_8082S	CRQL	R42416	8/19/2011 7:06:40 AM	Robert Lynch		
ccv pcb 1ppm c	SW_8082S	CCV	R42416	8/19/2011 7:30:50 AM	Robert Lynch		
1108447-007b	SW_8082S	SAMP	23260	8/19/2011 7:55:02 AM	Robert Lynch		
1108447-008b	SW_8082S	SAMP	23260	8/19/2011 8:19:11 AM	Robert Lynch		
1108447-009b	SW_8082S	SAMP	23260	8/19/2011 8:43:27 AM	Robert Lynch		
1108447-010b	SW_8082S	SAMP	23260	8/19/2011 9:07:38 AM	Robert Lynch		
1108447-012b	SW_8082S	SAMP	23260	8/19/2011 9:56:02 AM	Robert Lynch		
1108447-013b	SW_8082S	SAMP	23260	8/19/2011 10:28:35 AM	Robert Lynch		

RTI Laboratories

Run ID: GC-ECD 1_110818A Run No.: 42416

1108447-014b	SW_8082S	SAMP	23260	8/19/2011 10:52:46 AM	Robert Lynch		
1108492-003a	SW_8082S	SAMP	23260	8/19/2011 11:16:59 AM	Robert Lynch		
1108534-001a	SW_8082S	SAMP	23260	8/19/2011 11:41:08 AM	Robert Lynch		
1108534-001a	SW_8082S-3550	SAMP	23260	8/19/2011 11:41:08 AM	Robert Lynch		
ccb d	SW_8082S	CCB	R42416	8/19/2011 12:05:33 PM	Robert Lynch		
crql pcb 0.05ppm d	SW_8082S	CRQL	R42416	8/19/2011 12:29:47 PM	Robert Lynch		
ccv pcb 1ppm d	SW_8082S	CCV	R42416	8/19/2011 12:53:57 PM	Robert Lynch		
1108481-001a	SW_8082S	SAMP	23260	8/19/2011 1:18:14 PM	Robert Lynch		
1108481-003b	SW_8082S	SAMP	23260	8/19/2011 1:42:23 PM	Robert Lynch		
1108481-004b	SW_8082S	SAMP	23260	8/19/2011 2:06:36 PM	Robert Lynch		
1108481-005b	SW_8082S	SAMP	23260	8/19/2011 2:30:44 PM	Robert Lynch		
1108481-006a	SW_8082S	SAMP	23260	8/19/2011 2:54:59 PM	Robert Lynch		
1108580-001a	SW_8082S	SAMP	23260	8/19/2011 3:19:12 PM	Robert Lynch		
1108447-011b	SW_8082S	SAMP	23260	8/19/2011 3:43:26 PM	Robert Lynch		
1108257-013a	SW_8082S	SAMP	23223	8/19/2011 4:07:36 PM	Robert Lynch		Surrogate diluted out.
ccb e	SW_8082S	CCB	R42416	8/19/2011 6:16:38 PM	Robert Lynch		
crql pcb 0.05ppm e	SW_8082S	CRQL	R42416	8/19/2011 6:40:52 PM	Robert Lynch		
ccv pcb 1ppm e	SW_8082S	CCV	R42416	8/19/2011 7:04:58 PM	Robert Lynch		

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm b.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm b

Injection Date: 8/19/11 1:52 AM Calculation Date: 8/23/11 6:13 PM

Operator : M. Rudziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0531	6.2	4.784	-0.008	170067	0	
2	A1016-1	1.0000	0.9080	9.2	5.638	-0.005	39059	1	
3	A1016-2	1.0000	1.0982	9.8	6.746	-0.030	44427	1	
4	A1016-3	1.0000	1.0859	8.6	7.711	-0.004	34577	1	
5	A1016-4	1.0000	1.0477	4.8	7.857	-0.002	34093	1	
6	A1016-5	1.0000	1.0826	8.3	8.173	-0.002	53587	1	
7	A1260-1	1.0000	0.9206	7.9	10.080	-0.002	80022	2	
8	A1260-2	1.0000	1.0653	6.5	11.571	-0.004	109990	2	
9	A1260-3	1.0000	1.1092	10.9	12.098	-0.004	88806	2	
10	A1260-4	1.0000	1.1414	14.1	12.295	-0.004	39400	2	
11	A1260-5	1.0000	1.0923	9.2	14.547	-0.010	93220	2	
12	DCB-surr	0.0500	0.0554	10.7	16.396	-0.012	133319	0	
	Group 0		0.1085			-0.020	303386		
	Group 1		5.2224			-0.043	205743		
	Group 2		5.3288			-0.024	411438		
	Totals:		10.6597			-0.087	920567		

Total Unidentified Counts : 4180687 counts

Detected Peaks: 51 Rejected Peaks: 2 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 82210 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm b.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm b

Injection Date: 8/19/11 1:52 AM Calculation Date: 8/25/11 12:04 PM

Operator : M. Budziak Detector Type: ADCB (10 Volts)
Workstation: Bus Address : 20
Instrument : ECD GC#1 module20 Sample Rate : 10.00 Hz
Channel : A = A Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0560	12.0	3.833	-0.003	60924	0	
2	A1016-1	1.0000	1.0679	6.8	4.418	-0.010	10146	1	
3	A1016-2	1.0000	1.1446	14.5	4.932	0.003	33093	1	
4	A1016-3	1.0000	1.1378	13.8	5.239	-0.000	25923	1	
5	A1016-4	1.0000	1.0148	1.5	5.915	0.001	25857	1	
6	A1016-5	1.0000	0.9772	2.3	6.555	0.007	27114	1	
7	A1260-1	1.0000	1.0828	8.3	8.556	0.007	46769	2	
8	A1260-2	1.0000	1.0588	5.9	9.235	0.005	40927	2	
9	A1260-3	1.0000	1.1308	13.1	9.756	0.006	53517	2	
10	A1260-4	1.0000	1.1022	10.2	11.218	0.009	62630	2	
11	A1260-5	1.0000	1.0659	6.6	12.133	0.010	46495	2	
12	DCB-surr	0.0500	0.0492	1.6	13.010	0.013	65712	0	
	Group 0		0.1052			0.010	126636		
	Group 1		5.3423			0.001	122133		
	Group 2		5.4405			0.037	250338		
	Totals:		10.8880			0.048	499107		

Total Unidentified Counts : 1147333 counts

Detected Peaks: 45 Rejected Peaks: 2 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 12740 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm c.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm c

Injection Date: 8/19/11 7:30 AM Calculation Date: 9/27/11 5:03 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0565	13.0	3.841	0.005	61492	0	
2	A1016-1	1.0000	1.0312	3.1	4.421	-0.007	9783	1	
3	A1016-2	1.0000	1.0731	7.3	4.936	0.007	31125	1	
4	A1016-3	1.0000	0.9471	5.3	5.242	0.003	21755	1	
5	A1016-4	1.0000	1.0623	6.2	5.918	0.004	27015	1	
6	A1016-5	1.0000	0.9490	5.1	6.557	0.009	26365	1	
7	A1260-1	1.0000	1.0718	7.2	8.558	0.009	46293	2	
8	A1260-2	1.0000	0.9344	6.6	9.238	0.008	36076	2	
9	A1260-3	1.0000	1.0488	4.9	9.757	0.007	49454	2	
10	A1260-4	1.0000	1.0398	4.0	11.219	0.010	58929	2	
11	A1260-5	1.0000	1.0000	0.0	12.137	0.014	43457	2	
12	DCB-surr	0.0500	0.0485	3.1	13.012	0.016	64682	0	
	Group 0		0.1050			0.021	126174		
	Group 1		5.0627			0.016	116043		
	Group 2		5.0948			0.048	234209		
	Totals:		10.2625			0.085	476426		

Total Unidentified Counts : 1134292 counts

Detected Peaks: 54 Rejected Peaks: 8 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 16270 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm c.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm c

Injection Date: 8/19/11 7:30 AM Calculation Date: 8/23/11 6:14 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 20.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0551	10.2	4.788	-0.004	177314	0	
2	A1016-1	1.0000	0.9297	7.0	5.640	-0.003	40007	1	
3	A1016-2	1.0000	1.0745	7.4	6.746	-0.030	43494	1	
4	A1016-3	1.0000	1.1383	13.8	7.710	-0.005	36266	1	
5	A1016-4	1.0000	1.0899	9.0	7.857	-0.003	35491	1	
6	A1016-5	1.0000	1.1084	10.8	8.172	-0.003	54917	1	
7	A1260-1	1.0000	1.0738	7.4	10.079	-0.003	95694	2	
8	A1260-2	1.0000	0.9451	5.5	11.570	-0.005	96026	2	
9	A1260-3	1.0000	0.9735	2.7	12.098	-0.004	76503	2	
10	A1260-4	1.0000	0.9230	7.7	12.295	-0.004	31562	2	
11	A1260-5	1.0000	1.0537	5.4	14.546	-0.012	89653	2	
12	DCB-surr	0.0500	0.0512	2.3	16.391	-0.017	122404	0	
	Group 0		0.1063			-0.021	299718		
	Group 1		5.3408			-0.044	210175		
	Group 2		4.9691			-0.028	389438		
	Totals:		10.4162			-0.093	899331		

Total Unidentified Counts : 4727117 counts

Detected Peaks: 47 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 95180 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm d.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm d

Injection Date: 8/19/11 12:53 PM Calculation Date: 9/27/11 5:04 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0554	10.7	3.849	0.013	60239	0	
2	A1016-1	1.0000	1.0449	4.5	4.439	0.011	9919	1	
3	A1016-2	1.0000	1.0940	9.4	4.948	0.019	31701	1	
4	A1016-3	1.0000	0.9676	3.2	5.254	0.015	22207	1	
5	A1016-4	1.0000	1.0991	9.9	5.931	0.017	27913	1	
6	A1016-5	1.0000	0.9720	2.8	6.571	0.023	26975	1	
7	A1260-1	1.0000	1.1193	11.9	8.569	0.020	48347	2	
8	A1260-2	1.0000	0.9704	3.0	9.249	0.019	37477	2	
9	A1260-3	1.0000	1.1084	10.8	9.767	0.017	52405	2	
10	A1260-4	1.0000	1.1432	14.3	11.229	0.020	65062	2	
11	A1260-5	1.0000	1.1428	14.3	12.148	0.024	50061	2	
12	DCB-surr	0.0500	0.0534	6.8	13.024	0.027	71641	0	
	Group 0		0.1088			0.040	131880		
	Group 1		5.1776			0.085	118715		
	Group 2		5.4841			0.100	253352		
	Totals:		10.7705			0.225	503947		

Total Unidentified Counts : 1213911 counts

Detected Peaks: 47 Rejected Peaks: 4 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 15190 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm d.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm d

Injection Date: 8/19/11 12:53 PM Calculation Date: 8/23/11 6:20 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0571	14.1	4.798	0.006	184783	0	
2	A1016-1	1.0000	0.9416	5.8	5.652	0.009	40526	1	
3	A1016-2	1.0000	1.1113	11.1	6.758	-0.018	44941	1	
4	A1016-3	1.0000	1.1203	12.0	7.721	0.006	35684	1	
5	A1016-4	1.0000	1.1018	10.2	7.867	0.008	35888	1	
6	A1016-5	1.0000	1.1483	14.8	8.183	0.008	56979	1	
7	A1260-1	1.0000	1.0529	5.3	10.089	0.007	93517	2	
8	A1260-2	1.0000	1.0783	7.8	11.580	0.005	111525	2	
9	A1260-3	1.0000	1.1271	12.7	12.108	0.006	90464	2	
10	A1260-4	1.0000	1.0467	4.7	12.304	0.005	35984	2	
11	A1260-5	1.0000	1.1136	11.4	14.563	0.005	95199	2	
12	DCB-surr	0.0500	0.0556	11.3	16.416	0.008	134017	0	
	Group 0		0.1127			0.014	318800		
	Group 1		5.4233			0.013	214018		
	Group 2		5.4186			0.028	426689		
	Totals:		10.9546			0.055	959507		

Total Unidentified Counts : 5525953 counts

Detected Peaks: 50 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 93360 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm e.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm e

Injection Date: 8/19/11 7:04 PM Calculation Date: 9/27/11 5:03 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0569	13.7	3.852	0.016	61865	0	
2	A1016-1	1.0000	0.9906	0.9	4.438	0.010	9382	1	
3	A1016-2	1.0000	1.0760	7.6	4.946	0.017	31206	1	
4	A1016-3	1.0000	0.9468	5.3	5.253	0.014	21749	1	
5	A1016-4	1.0000	1.1209	12.1	5.931	0.017	28442	1	
6	A1016-5	1.0000	0.9563	4.4	6.569	0.022	26559	1	
7	A1260-1	1.0000	1.0974	9.7	8.567	0.018	47402	2	
8	A1260-2	1.0000	0.9396	6.0	9.247	0.017	36278	2	
9	A1260-3	1.0000	1.0881	8.8	9.764	0.014	51400	2	
10	A1260-4	1.0000	1.1357	13.6	11.225	0.016	64617	2	
11	A1260-5	1.0000	1.1188	11.9	12.145	0.022	48945	2	
12	DCB-surr	0.0500	0.0540	8.0	13.020	0.023	72497	0	
	Group 0		0.1109			0.039	134362		
	Group 1		5.0906			0.080	117338		
	Group 2		5.3796			0.087	248642		
	Totals:		10.5811			0.206	500342		

Total Unidentified Counts : 1187692 counts

Detected Peaks: 57 Rejected Peaks: 11 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 14840 microVolts

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0818-pcb\ccv pcb 1ppm e.run
Method File : d:\star\data\module 20ecd\08-2011\0818-pcb\pcb08-12-2011.mth
Sample ID : ccv pcb 1ppm e

Injection Date: 8/19/11 7:04 PM Calculation Date: 8/23/11 6:21 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0563	12.7	4.796	0.004	181980	0	
2	A1016-1	1.0000	0.9315	6.8	5.649	0.006	40085	1	
3	A1016-2	1.0000	1.0694	6.9	6.754	-0.022	43296	1	
4	A1016-3	1.0000	1.1253	12.5	7.719	0.003	35846	1	
5	A1016-4	1.0000	1.1083	10.8	7.864	0.005	36104	1	
6	A1016-5	1.0000	1.1437	14.4	8.180	0.005	56744	1	
7	A1260-1	1.0000	1.0448	4.5	10.085	0.003	92676	2	
8	A1260-2	1.0000	1.1013	10.1	11.575	0.000	114252	2	
9	A1260-3	1.0000	1.1367	13.7	12.104	0.002	91357	2	
10	A1260-4	1.0000	1.0728	7.3	12.300	0.001	36923	2	
11	A1260-5	1.0000	1.1002	10.0	14.552	-0.005	93956	2	
12	DCB-surr	0.0500	0.0565	13.1	16.406	-0.002	136430	0	
	Group 0		0.1128			0.002	318410		
	Group 1		5.3782			-0.003	212075		
	Group 2		5.4558			0.001	429164		
	Totals:		10.9468			0.000	959649		

Total Unidentified Counts : 5646512 counts

Detected Peaks: 50 Rejected Peaks: 0 Identified Peaks: 12

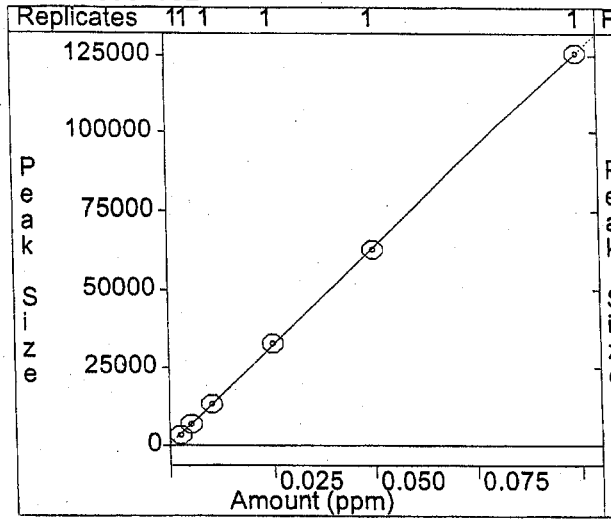
Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 94480 microVolts

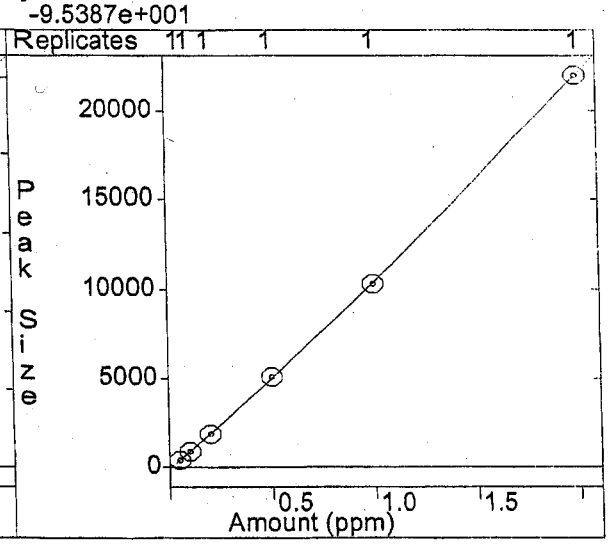
Cal. Channel A

Print Date: 09 Sep 2011 12:25:41
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: A

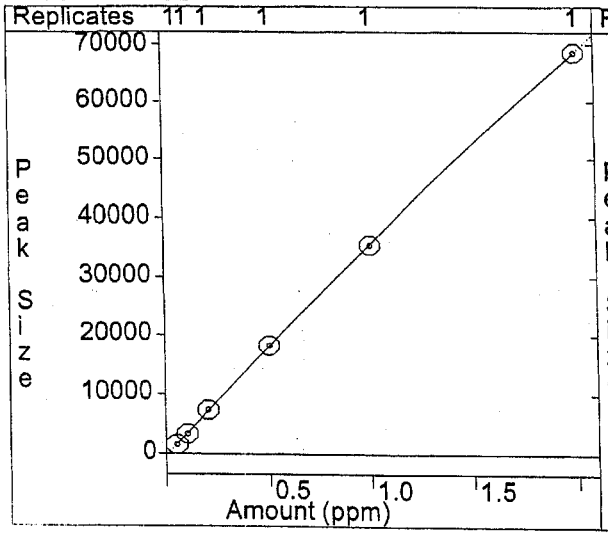
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 4.380%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999939
$y = -9.0289e+004x^2 + 1.2601e+006x + 6.6489e+002$



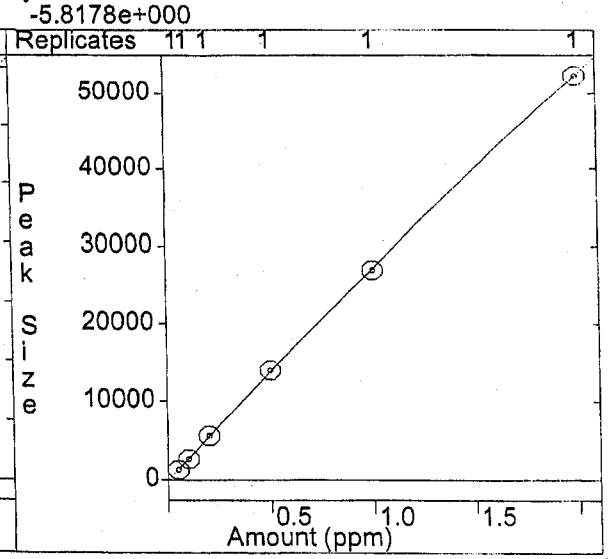
A1016-1
External Standard Analysis
Resp. Fact. RSD: 12.02%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999959
$y = +5.8532e+002x^2 + 9.8924e+003x - 9.5387e+001$



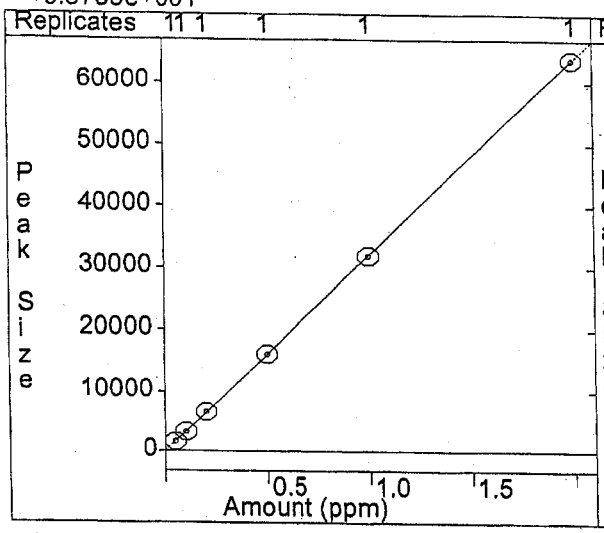
A1016-2
External Standard Analysis
Resp. Fact. RSD: 5.449%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999979
$y = -1.4422e+003x^2 + 3.7283e+004x - 2.0180e+002$



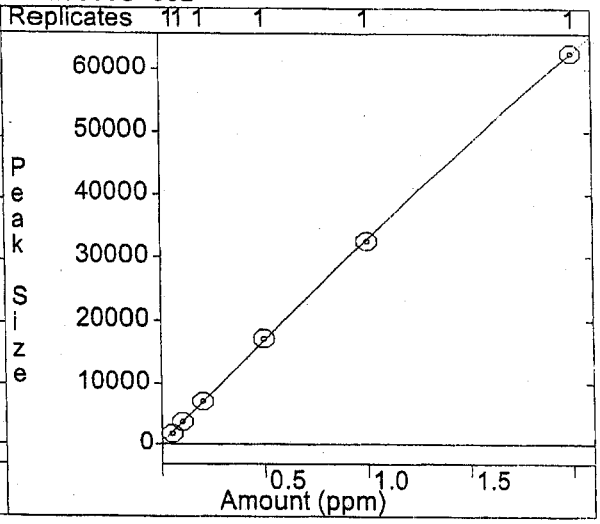
A1016-3
External Standard Analysis
Resp. Fact. RSD: 2.849%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999968
$y = -9.8918e+002x^2 + 2.8129e+004x - 5.8178e+000$



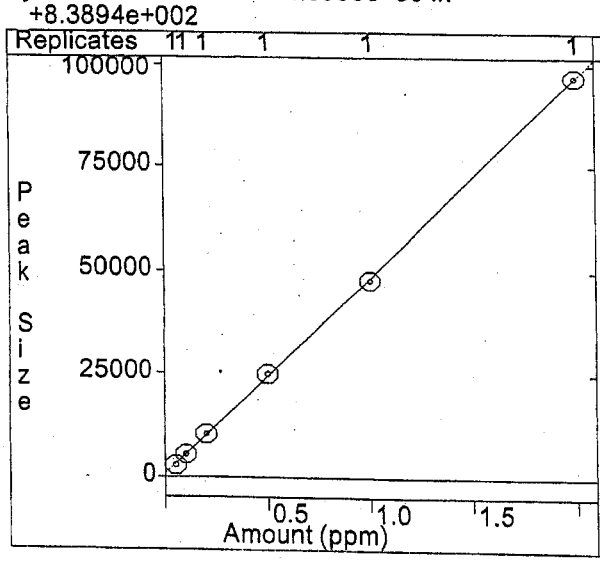
A1016-4
External Standard Analysis
Resp. Fact. RSD: 1.436%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999984
$y = -1.9929e+001x^2 + 3.1956e+004x + 9.8785e+001$



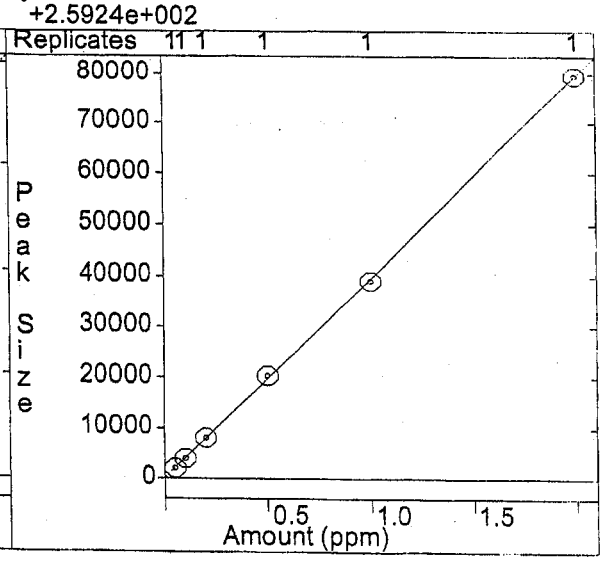
A1016-5
External Standard Analysis
Resp. Fact. RSD: 6.023%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999911
$y = -1.3799e+003x^2 + 3.3943e+004x + 2.8950e+002$



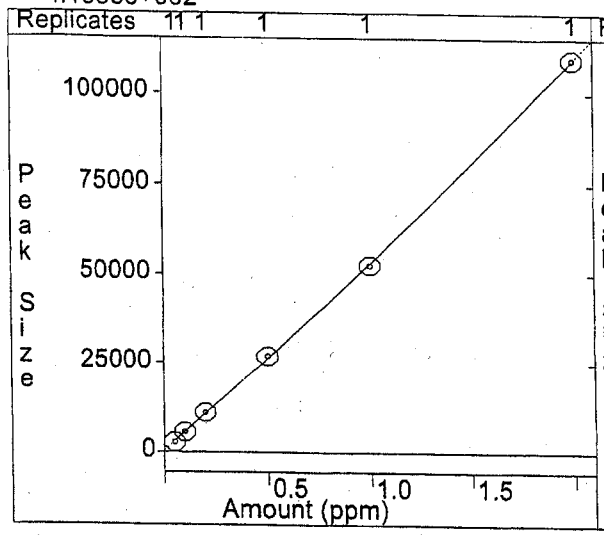
A1260-1
External Standard Analysis
Resp. Fact. RSD: 6.912%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999894
$y = +5.9703e+002x^2 + 4.6855e+004x + 8.3894e+002$



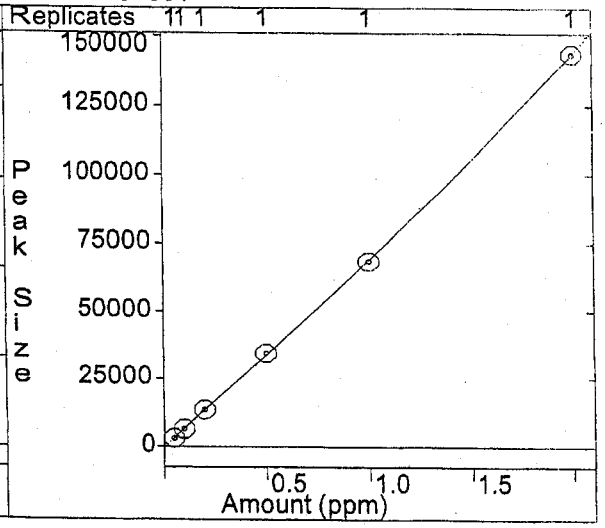
A1260-2
External Standard Analysis
Resp. Fact. RSD: 2.046%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999884
$y = +3.9972e+002x^2 + 3.8844e+004x + 2.5924e+002$



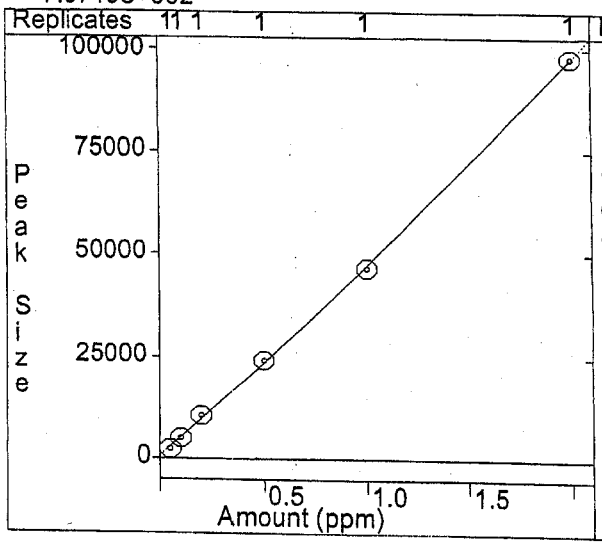
A1260-3
External Standard Analysis
Resp. Fact. RSD: 1.786%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999899
y = +1.8672e+003x^2 +5.0771e+004x
+4.1585e+002



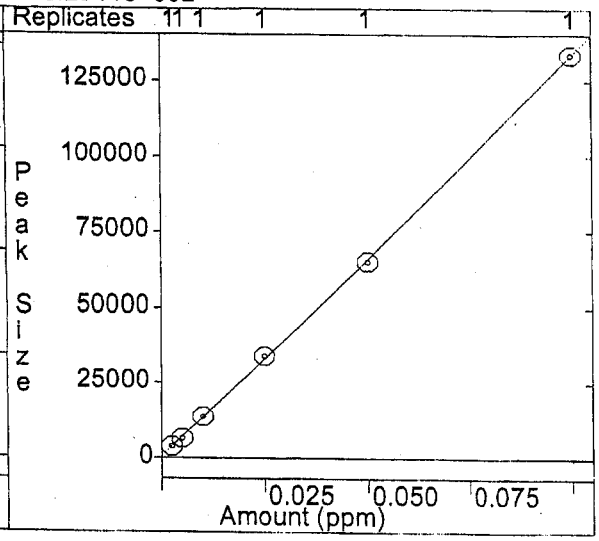
A1260-4
External Standard Analysis
Resp. Fact. RSD: 5.588%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999941
y = +2.8845e+003x^2 +6.6088e+004x
-9.7814e+001



A1260-5
External Standard Analysis
Resp. Fact. RSD: 4.957%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999694
y = +1.9112e+003x^2 +4.4679e+004x
+7.0719e+002



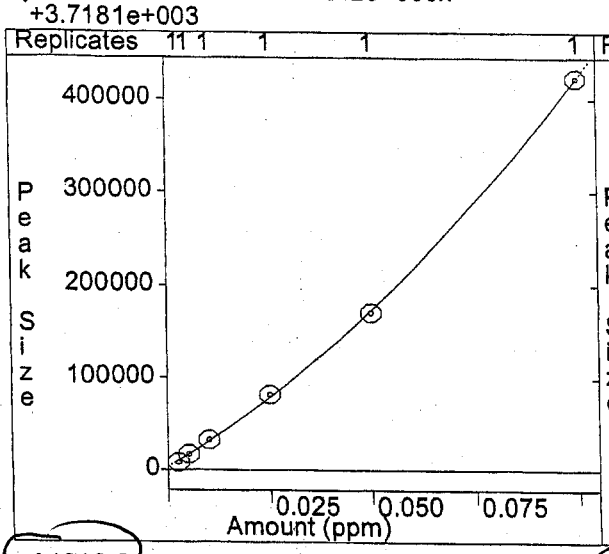
DCB-surr
External Standard Analysis
Resp. Fact. RSD: 6.055%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999842
y = +4.8039e+005x^2 +1.2829e+006x
+6.2844e+002



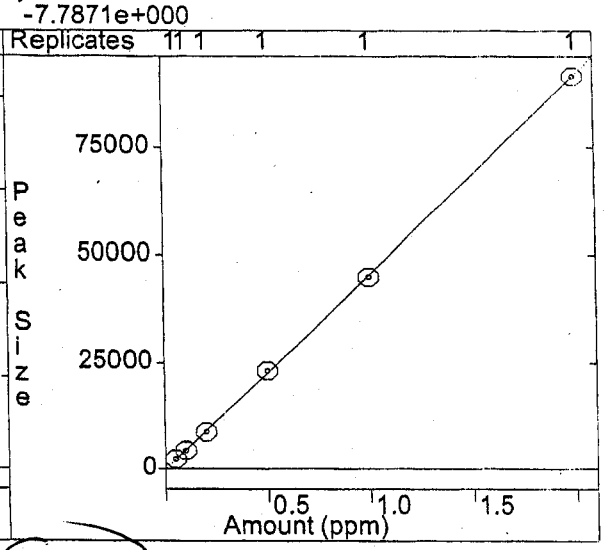
CAL. Channel B

Print Date: 09 Sep 2011 12:25:22
Calibration Curves Report - Page 1
File: d:\star\data\module 20ecd\08-2011\0823-peb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20 Channel ID: B

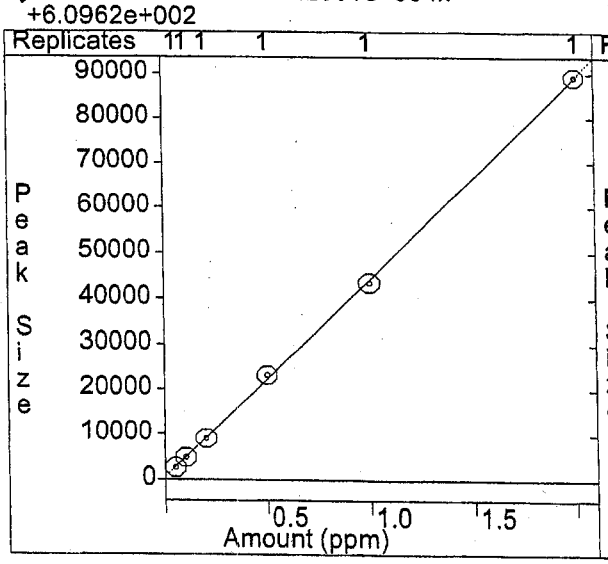
TCMX-surr
External Standard Analysis
Resp. Fact. RSD: 10.61%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999834
$y = +1.5694e+007x^2 +2.6242e+006x +3.7181e+003$



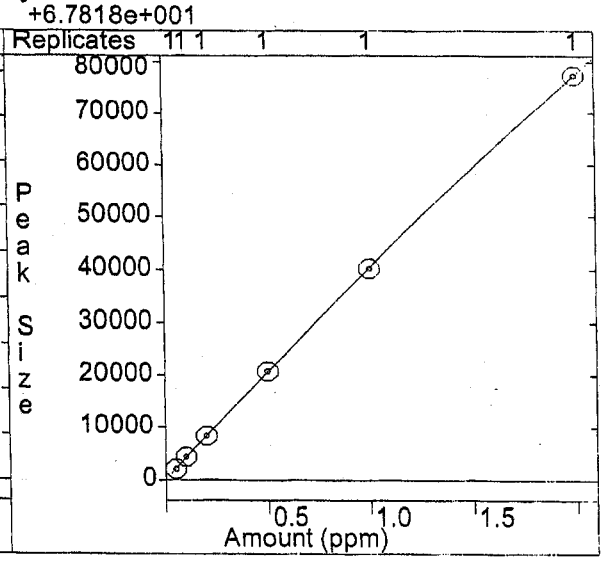
A1016-1
External Standard Analysis
Resp. Fact. RSD: 2.932%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999906
$y = +4.4676e+002x^2 +4.4870e+004x -7.7871e+000$



A1016-2
External Standard Analysis
Resp. Fact. RSD: 6.320%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999755
$y = +7.2201e+002x^2 +4.2861e+004x +6.0962e+002$

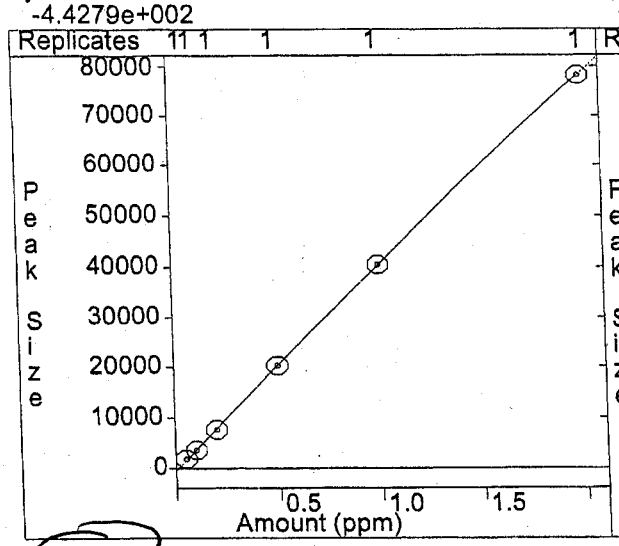


A1016-3
External Standard Analysis
Resp. Fact. RSD: 3.792%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999989
$y = -1.7049e+003x^2 +4.2059e+004x +6.7818e+001$

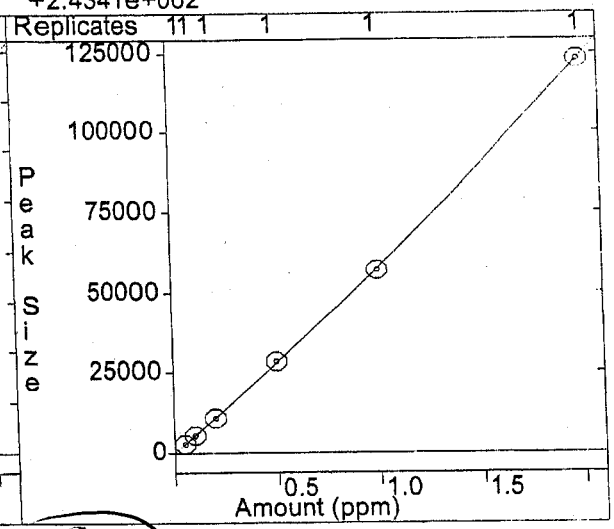


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 2
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

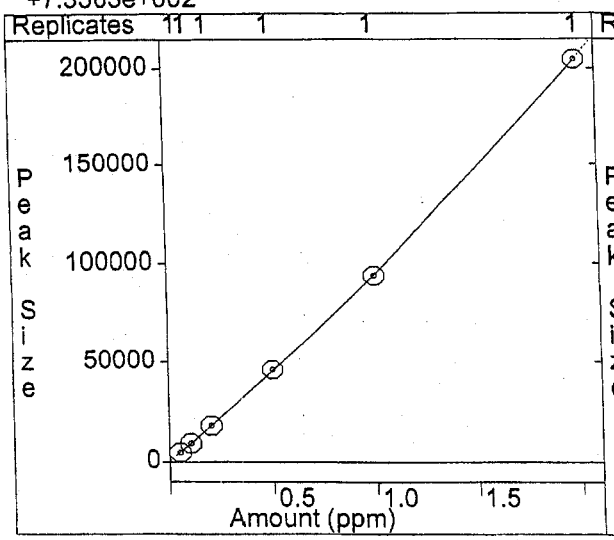
A1016-4
External Standard Analysis
Resp. Fact. RSD: 3.429%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999967
$y = -1.4912e+003x^2 + 4.2332e+004x - 4.4279e+002$



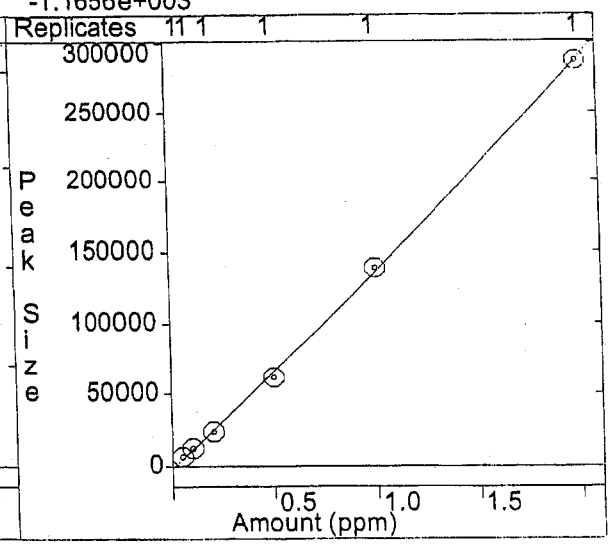
A1016-5
External Standard Analysis
Resp. Fact. RSD: 4.280%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999960
$y = +4.1703e+003x^2 + 5.3006e+004x + 2.4341e+002$



A1260-1
External Standard Analysis
Resp. Fact. RSD: 4.373%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999985
$y = +8.3062e+003x^2 + 8.5273e+004x + 7.3563e+002$

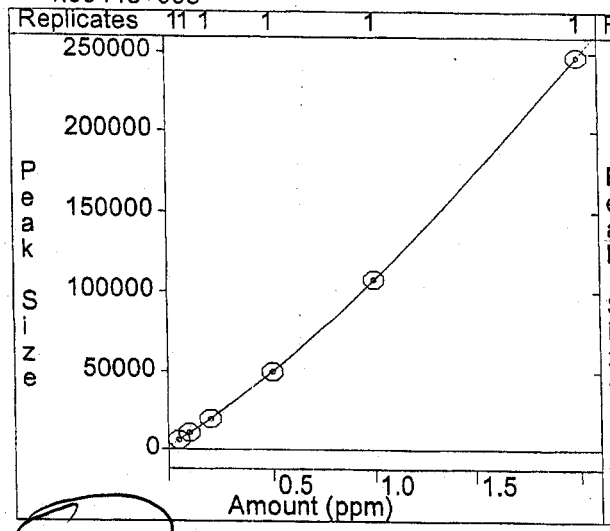


A1260-2
External Standard Analysis
Resp. Fact. RSD: 7.178%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999484
$y = +7.2046e+003x^2 + 1.2994e+005x - 1.1656e+003$

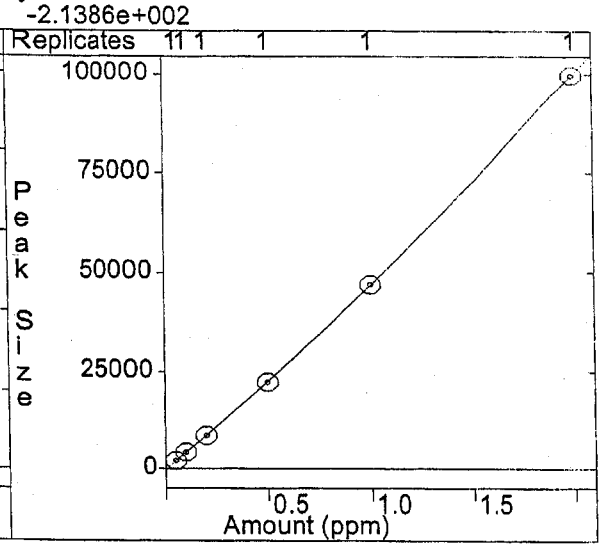


Print Date: 09 Sep 2011 12:25:23
Calibration Curves Report - Page 3
File: d:\star\data\module 20ecd\08-2011\0823-pcb-cal\pcb08-23-2011.mth
Detector: ADC Board, Address: 20, Channel ID: B

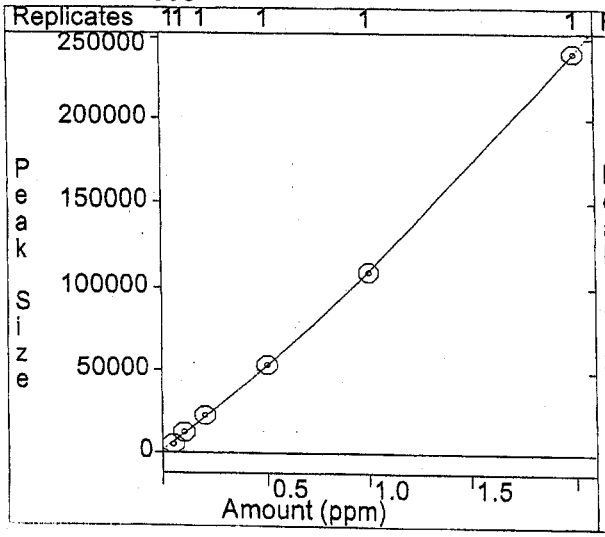
A1260-3
External Standard Analysis
Resp. Fact. RSD: 9.766%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999995
$y = +1.7085e+004x^2 +8.8762e+004x +1.5944e+003$



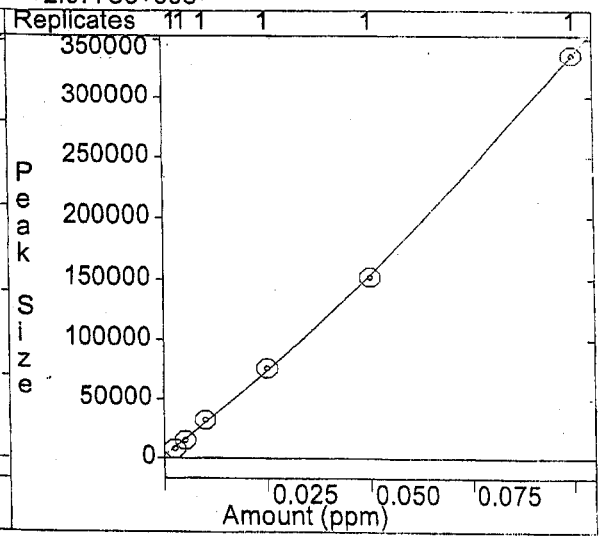
A1260-4
External Standard Analysis
Resp. Fact. RSD: 7.043%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999992
$y = +2.9664e+003x^2 +4.4033e+004x -2.1386e+002$



A1260-5
External Standard Analysis
Resp. Fact. RSD: 6.879%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999901
$y = +1.0948e+004x^2 +9.7679e+004x +1.7231e+003$



DCB-surr
External Standard Analysis
Resp. Fact. RSD: 4.335%
Curve Type: Quadratic
Origin: Ignore
Coeff. Det.(r^2): 0.999820
$y = +6.1485e+006x^2 +2.7199e+006x +2.5778e+003$



RTI Laboratories

Run ID: GC-ECD 1_110829B **Run No.:** 42535

Analytical Run Date: 8/29/2011 **InstrumentID:** GC-ECD 1

Analyst: Mike Budzlak **Column:** GC-ECD 1-Primary

Calibration ID: **Column ID:** 0.53mm 0.42um cat11340ser

Column Length: 30m

Run Comments: ch rev 8/31/11

SampID	TestCode	SampType	Batch ID	Analysis Date/Time	QA By	Q	Comments
icb 082911a	SW_8082A	ICB	R42535	8/28/2011 8:48:24 PM	Charles O'Bryan		
crql pcb082911a1	SW_8082A	CRQL	R42535	8/28/2011 9:12:37 PM	Charles O'Bryan		
ccv pcb082911a1	SW_8082A	CCV	R42535	8/28/2011 9:48:13 PM	Charles O'Bryan		
lcs-23323	EPA_608_PCB	LCS	23323	8/28/2011 10:12:34 PM	Charles O'Bryan		
lcsd-23323	EPA_608_PCB	LCSD	23323	8/28/2011 10:36:47 PM	Charles O'Bryan		
mb-23323	EPA_608_PCB	MBLK	23323	8/28/2011 11:00:56 PM	Charles O'Bryan		
1108772-001c	EPA_608_PCB	SAMP	23323	8/28/2011 11:25:07 PM	Charles O'Bryan		
1108772-002c	EPA_608_PCB	SAMP	23323	8/28/2011 11:49:16 PM	Charles O'Bryan		
1108257-001a	SW_8082S	SAMP	23201	8/29/2011 12:37:40 AM	Charles O'Bryan		
1108257-002a	SW_8082S	SAMP	23201	8/29/2011 1:01:54 AM	Charles O'Bryan		
1108257-003a	SW_8082S	SAMP	23201	8/29/2011 1:26:06 AM	Charles O'Bryan		
1108257-005a	SW_8082S	SAMP	23201	8/29/2011 2:14:25 AM	Charles O'Bryan		
ccb pcb082911b1	SW_8082A	CCB	R42535	8/29/2011 3:02:49 AM	Charles O'Bryan		
crql pcb082911b1	SW_8082A	CRQL	R42535	8/29/2011 3:27:03 AM	Charles O'Bryan		
ccv pcb082911b1	SW_8082A	CCV	R42535	8/29/2011 3:51:15 AM	Charles O'Bryan		
lcs-23271	SW_8082S	LCS	23271	8/29/2011 4:15:34 AM	Charles O'Bryan		
mb-23271	SW_8082S	MBLK	23271	8/29/2011 4:39:45 AM	Charles O'Bryan		
1108481-007b	SW_8082S	SAMP	23271	8/29/2011 5:03:51 AM	Charles O'Bryan		
1108481-012a	SW_8082S	SAMP	23271	8/29/2011 5:28:01 AM	Charles O'Bryan		
1108481-007bms	SW_8082S	MS	23271	8/29/2011 5:52:08 AM	Charles O'Bryan		
1108481-007bmsd	SW_8082S	MSD	23271	8/29/2011 6:16:20 AM	Charles O'Bryan		
1108482-001a	SW_8082S	SAMP	23271	8/29/2011 6:40:43 AM	Charles O'Bryan		
1108482-002a	SW_8082S	SAMP	23271	8/29/2011 7:04:52 AM	Charles O'Bryan		
1108482-003a	SW_8082S	SAMP	23271	8/29/2011 7:29:03 AM	Charles O'Bryan		
1108482-004a	SW_8082S	SAMP	23271	8/29/2011 7:53:13 AM	Charles O'Bryan		Surrogates diluted out.
1108482-005a	SW_8082S	SAMP	23271	8/29/2011 8:17:28 AM	Charles O'Bryan		Surrogates diluted out.
1108482-006a	SW_8082S	SAMP	23271	8/29/2011 8:41:37 AM	Charles O'Bryan		Surrogates diluted out.
1108482-008a	SW_8082S	SAMP	23271	8/29/2011 9:30:01 AM	Charles O'Bryan		Surrogates diluted out.
ccb pcb082911c1	SW_8082S	CCB	R42535	8/29/2011 9:54:27 AM	Celeste Hoitash		
crql pcb082911c1	SW_8082S	CRQL	R42535	8/29/2011 10:18:40 AM	Celeste Hoitash		
ccv pcb082911c1	SW_8082S	CCV	R42535	8/29/2011 10:42:47 AM	Celeste Hoitash		
lcs-23385	SW_8082S	LCS	23385	8/29/2011 11:27:52 AM	Celeste Hoitash		
mb-23385	SW_8082S	MBLK	23385	8/29/2011 11:52:00 AM	Celeste Hoitash		
1108911-001a	SW_8082S-3550	SAMP	23385	8/29/2011 12:16:14 PM	Celeste Hoitash		A1016 recovery is high due to matrix interferences.
1108623-001a	SW_8082S	SAMP	23385	8/29/2011 12:40:25 PM	Celeste Hoitash		

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0829-pcb\ccv pcb082911b1.run
Method File : d:\star\data\module 20ecd\08-2011\0829-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082911b1

Injection Date: 8/29/11 3:51 AM Calculation Date: 9/9/11 11:55 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0483	3.5	3.847	0.001	61271	0	
2	A1016-1	1.0000	0.9291	7.1	4.445	-0.022	9601	1	
3	A1016-2	1.0000	0.9564	4.4	4.938	-0.002	34135	1	
4	A1016-3	1.0000	0.8527	14.7	5.246	-0.001	23261	1	
5	A1016-4	1.0000	0.9426	5.7	5.924	-0.006	30202	1	
6	A1016-5	1.0000	1.0940	9.4	6.558	-0.005	35772	1	
7	A1260-1	1.0000	1.0339	3.4	8.549	-0.004	49920	2	
8	A1260-2	1.0000	1.1206	12.1	9.230	-0.005	44289	2	
9	A1260-3	1.0000	0.9530	4.7	9.744	-0.006	50497	2	
10	A1260-4	1.0000	0.9951	0.5	11.205	-0.006	68523	2	
11	A1260-5	1.0000	1.0594	5.9	12.128	-0.003	50187	2	
12	DCB-surr	0.0500	0.0532	6.4	12.999	-0.002	70213	0	
	Group 0		0.1015			-0.001	131484		
	Group 1		4.7748			-0.036	132971		
	Group 2		5.1620			-0.024	263416		
	Totals:		10.0383			-0.061	527871		

Total Unidentified Counts : 1245778 counts

Detected Peaks: 44 Rejected Peaks: 1 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 5730 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 400 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : D:\Star\data\Module 20ecd\08-2011\0829-pcb\ccv pcb082911b1.run
Method File : d:\star\data\module 20ecd\08-2011\0829-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082911b1

Injection Date: 8/29/11 3:51 AM Calculation Date: 8/29/11 7:30 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0542	8.5	4.787	0.002	192212	0	
2	A1016-1	1.0000	1.0908	9.1	5.643	0.003	49468	1	
3	A1016-2	1.0000	1.1157	11.6	6.742	-0.026	49330	1	
4	A1016-3	1.0000	1.0370	3.7	7.703	-0.001	41849	1	
5	A1016-4	1.0000	1.0605	6.0	7.851	-0.015	42772	1	
6	A1016-5	1.0000	1.1428	14.3	8.165	-0.001	66266	1	
7	A1260-1	1.0000	1.1111	11.1	10.068	-0.029	105737	2	
8	A1260-2	1.0000	1.0327	3.3	11.557	-0.003	140713	2	
9	A1260-3	1.0000	1.0673	6.7	12.086	0.001	115795	2	
10	A1260-4	1.0000	1.0103	1.0	12.280	0.000	47302	2	
11	A1260-5	1.0000	1.1359	13.6	14.529	0.002	126800	2	
12	DCB-surr	0.0500	0.0550	10.0	16.368	-0.001	170722	0	
	Group 0		0.1092			0.001	362934		
	Group 1		5.4468			-0.040	249685		
	Group 2		5.3573			-0.029	536347		
	Totals:		10.9133			-0.068	1148966		

Total Unidentified Counts : 5593719 counts

Detected Peaks: 47 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 78050 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 1860 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0829-pcb\ccv pcb082911c1.run
Method File : d:\star\data\module 20ecd\08-2011\0829-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082911c1

Injection Date: 8/29/11 10:42 AM Calculation Date: 11/9/11 3:40 PM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : A = A

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0484	3.2	3.859	0.013	61426	0	
2	A1016-1	1.0000	0.8951	10.5	4.466	-0.001	9228	1	
3	A1016-2	1.0000	0.9799	2.0	4.958	0.018	34945	1	
4	A1016-3	1.0000	1.0040	0.4	5.264	0.017	27239	1	
5	A1016-4	1.0000	0.9568	4.3	5.942	0.012	30656	1	
6	A1016-5	1.0000	1.0567	5.7	6.579	0.016	34617	1	
7	A1260-1	1.0000	1.1084	10.8	8.571	0.017	53505	2	
8	A1260-2	1.0000	1.0873	8.7	9.252	0.017	42969	2	
9	A1260-3	1.0000	0.9742	2.6	9.767	0.017	51647	2	
10	A1260-4	1.0000	1.0470	4.7	11.227	0.016	72261	2	
11	A1260-5	1.0000	0.9927	0.7	12.150	0.019	46944	2	
12	DCB-surr	0.0500	0.0527	5.4	13.024	0.023	69604	0	
	Group 0		0.1011			0.036	131030		
	Group 1		4.8925			0.062	136685		
	Group 2		5.2096			0.086	267326		
	Totals:		10.2032			0.184	535041		

Total Unidentified Counts : 1184992 counts

Detected Peaks: 44 Rejected Peaks: 2 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 5760 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 440 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

Verification Report

Title :
Run File : d:\star\data\module 20ecd\08-2011\0829-pcb\ccv pcb082911c1.run
Method File : d:\star\data\module 20ecd\08-2011\0829-pcb\pcb08-23-2011.mth
Sample ID : ccv pcb082911c1

Injection Date : 8/29/11 10:42 AM Calculation Date: 8/29/11 11:22 AM

Operator : M. Budziak
Workstation:
Instrument : ECD GC#1 module20
Channel : B = B

Detector Type: ADCB (10 Volts)
Bus Address : 20
Sample Rate : 10.00 Hz
Run Time : 20.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ug/mL)	Calculated Result (ug/mL)	Dev. %	Ret. Time (min)	Time Offset (min)	Area (counts)	Group	Status Codes
1	TCMX-surr	0.0500	0.0531	6.2	4.806	0.021	187367	0	
2	A1016-1	1.0000	1.1343	13.4	5.665	0.025	51464	1	
3	A1016-2	1.0000	1.0876	8.8	6.764	-0.004	48080	1	
4	A1016-3	1.0000	1.0989	9.9	7.726	0.022	44228	1	
5	A1016-4	1.0000	1.1263	12.6	7.872	0.024	45344	1	
6	A1016-5	1.0000	1.0858	8.6	8.188	0.022	62717	1	
7	A1260-1	1.0000	1.0217	2.2	10.090	0.023	96532	2	
8	A1260-2	1.0000	1.0603	6.0	11.580	0.020	144710	2	
9	A1260-3	1.0000	1.0813	8.1	12.108	0.023	117545	2	
10	A1260-4	1.0000	1.0527	5.3	12.304	0.024	49428	2	
11	A1260-5	1.0000	1.1154	11.5	14.561	0.034	124299	2	
12	DCB-surr	0.0500	0.0538	7.6	16.411	0.042	166771	0	
	Group 0		0.1069			0.063	354138		
	Group 1		5.5329			0.089	251833		
	Group 2		5.3314			0.124	532514		
	Totals:		10.9712			0.276	1138485		

Total Unidentified Counts : 5198032 counts

Detected Peaks: 43 Rejected Peaks: 0 Identified Peaks: 12

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 76160 microVolts

Noise (used): 1000 microVolts - fixed value
Noise (monitored before this run): 2270 microVolts

Rack: 1 Vial: 3 Injection Number: 1 Injection Volume: 2.0 ul

4C

EPA SAMPLE NO.

mb-23260

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Lab Sample ID: mb-23260 Lab File ID:

Matrix: (soil/water) S Extraction: (Type)

Sulfur Cleanup: (Y/N) N Date Extracted: 8/17/2011

Date Analyzed (1): 8/19/2011 Date Analyzed (2):

Time Analyzed (1): 3:53 Time Analyzed (2):

Instrument ID (1): GC-ECD 1 Instrument ID (2):

GC Column (1): CLPPest ID: 0.5 (mm) GC Column (2): ID: (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	lcs-23260	lcs-23260	8/19/2011	
2	ZZZZZ	1108447-003b	8/19/2011	
3	ZZZZZ	1108447-004b	8/19/2011	
4	ZZZZZ	1108447-005b	8/19/2011	
5	MS	1108447-005bms	8/19/2011	
6	MSD	1108447-005bmsd	8/19/2011	
7	ZZZZZ	1108447-006b	8/19/2011	
8	ZZZZZ	1108447-007b	8/19/2011	
9	ZZZZZ	1108447-008b	8/19/2011	
10	ZZZZZ	1108447-009b	8/19/2011	
11	ZZZZZ	1108447-010b	8/19/2011	
12	ZZZZZ	1108447-012b	8/19/2011	
13	ZZZZZ	1108447-013b	8/19/2011	
14	ZZZZZ	1108447-014b	8/19/2011	
15	ZZZZZ	1108492-003a	8/19/2011	
16	ZZZZZ	1108534-001a	8/19/2011	
17	OA-SS-EU21-000	1108481-001A	8/19/2011	
18	OA-SS-EU32-000	1108481-003B	8/19/2011	
19	OA-SS-EU19-000	1108481-004B	8/19/2011	
20	A-SS-DUP04-0811	1108481-005B	8/19/2011	
21	OA-SS-EU22-000	1108481-006A	8/19/2011	
22	ZZZZZ	1108580-001a	8/19/2011	
23	ZZZZZ	1108447-011b	8/19/2011	

COMMENTS: _____

Form 1

CLIENT SAMPLE NO.

mb-23260

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Solid Lab Sample ID: mb-23260

Sample wt/vol: 0.03039 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/19/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	33	U
11104-28-2	Aroclor 1221	33	U
11141-16-5	Aroclor 1232	33	U
53469-21-9	Aroclor 1242	33	U
12672-29-6	Aroclor 1248	33	U
11097-69-1	Aroclor 1254	33	U
11096-82-5	Aroclor 1260	33	U
37324-23-5	Aroclor 1262	33	U
1336-36-3	Total PCBs	33	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID lcs-23260 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
Aroclor 1016	166.5001664	0	170	102	40-140
Aroclor 1260	166.5001664	0	160	99	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III SW8082

4C

EPA SAMPLE NO.

mb-23271

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Lab Sample ID: mb-23271 Lab File ID:

Matrix: (soil/water) S Extraction: (Type)

Sulfur Cleanup: (Y/N) N Date Extracted: 8/18/2011

Date Analyzed (1): 8/29/2011 Date Analyzed (2):

Time Analyzed (1): 4:39 Time Analyzed (2):

Instrument ID (1): GC-ECD 1 Instrument ID (2):

GC Column (1): CLPPest ID: 0.5 (mm) GC Column (2): ID: (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	lcs-23271	lcs-23271	8/29/2011	
2	OA-SS-EU12-000	1108481-007B	8/29/2011	
3	OA-SS-EU22-000	1108481-012A	8/29/2011	
4	A-SS-EU12-0002M	1108481-007B	8/29/2011	
5	-SS-EU12-0002M	1108481-007B	8/29/2011	
6	ZZZZZ	1108482-001a	8/29/2011	
7	ZZZZZ	1108482-002a	8/29/2011	
8	ZZZZZ	1108482-003a	8/29/2011	
9	ZZZZZ	1108482-004a	8/29/2011	
10	ZZZZZ	1108482-005a	8/29/2011	
11	ZZZZZ	1108482-006a	8/29/2011	
12	ZZZZZ	1108482-008a	8/29/2011	
13	ZZZZZ	1108482-009a	8/29/2011	
14	ZZZZZ	1108482-010a	8/29/2011	
15	ZZZZZ	1108482-011a	8/29/2011	
16	ZZZZZ	1108482-012a	8/29/2011	
17	ZZZZZ	1108482-013a	8/29/2011	
18	ZZZZZ	1108482-014a	8/29/2011	
19	ZZZZZ	1108482-007a	8/29/2011	

COMMENTS: _____

Form 1

CLIENT SAMPLE NO.

mb-23271

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No.: _____ SDG No.: 1108481

Matrix: (soil/water) Solid Lab Sample ID: mb-23271

Sample wt/vol: 0.03003 (g/mL) Kg Lab File ID:

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 8/29/2011

GC Column: CLPPesticideII ID: 0.53 (mm) Dilution Factor: 1.00

Extract Volume: 5000 (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg	Q
12674-11-2	Aroclor 1016	33	U
11104-28-2	Aroclor 1221	33	U
11141-16-5	Aroclor 1232	33	U
53469-21-9	Aroclor 1242	33	U
12672-29-6	Aroclor 1248	33	U
11097-69-1	Aroclor 1254	33	U
11096-82-5	Aroclor 1260	33	U
37324-23-5	Aroclor 1262	33	U
1336-36-3	Total PCBs	33	U

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Sample ID lcs-23271 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
Aroclor 1016	166.1129567	0	160	98	40-140
Aroclor 1260	166.1129567	0	190	116	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III SW8082

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU35-0002 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1016	180	0	180	102	40-140
Aroclor 1260	180	0	190	105	60-130

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	180	190	105	2	25	40-140
Aroclor 1260	180	190	106	1	25	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

3

SYSTEM MONITORING SPIKE/DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: TET15 SAS No.: SDG No.: 1108481

Matrix Spike - Sample No.: IOA-SS-EU12-0002 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1016	180	0	210	118	40-140
Aroclor 1260	180	0	170	96	60-130

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	180	190	105	12	25	40-140
Aroclor 1260	180	210	115	18	25	60-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits

Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III SW8082

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: RTI Laboratories Contract: _____

Lab Code: GLEN01 Case No.: TET15 SAS No. _____ SDG No.: 1108481

Level: (low/med) low

	EPA SAMPLE NO.	SMC1 (DCB) #	SMC2 (TCX) #							TOT OUT
01	lcs-23260	121	101							0
02	mb-23260	125	100							0
03	MS	120	92							0
04	MSD	122	102							0
05	IOA-SS-EU21-0002	107	98							0
06	IOA-SS-EU32-0002	118	101							0
07	IOA-SS-EU19-0002	105	99							0
08	IOA-SS-DUP04-08111	118	101							0
09	IOA-SS-EU22-0002	105	97							0
10	lcs-23271	111	104							0
11	mb-23271	115	100							0
12	IOA-SS-EU12-0002	136 *	124							1
13	IOA-SS-EU22-0002	158 *	142 *							2
14	IOA-SS-EU12-0002MS	99	111							0
15	IOA-SS-EU12-0002MS	117	105							0

RA

			QC Limit
SMC1	(DCB)	=2,2′,3,3′,4,4′,5,5′,6,6′-Decachlorobiphenyl	60-125
SMC2	(TCX)	=Tetrachloro-m-xylene	60-125

Column to be used to flag recovery values

* Values outside of contract required QC limits

	Confirmation Column - Results Summary											
						08-18-11-PCB-rpd1108481					AVG	
Sample	Data		Inj.	Peak Names ------>								
Name	File	Mode	#	TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5	~~Total~~	RPD
1108481-006a	08481-006a.RPA	A	1	0.0494	0.0482	0.0183	0.0413	0.0364	0.1333	0.0997	0.0658	29.56%
	Primary Column - Results Summary											
Sample	Data		Inj.	Peak Names ------>								
Name	File	Mode	#	TCMX-surr	DCB-surr	A1260-1	A1260-2	A1260-3	A1260-4	A1260-5		
1108481-006a	08481-006a.RPB	A	1	0.0484	0.0527	0.0190	0.0417	0.0350	0.0483	0.1001	0.0488	

>25%

NAS SOUTH WEYMOUTH
SOIL DATA
1108481

FRACTION	CHEMICAL	IOA-SO-DUP05-081511	UNITS	DA-SO-RIA33-SB14-050	RPD	D
PAH	2-METHYLNAPHTHALENE	ND	UG/KG	7 J	200.00	7.00 N/A < 2X R.L.
PAH	ACENAPHTHYLENE	11 J	UG/KG	15 J	30.77	4.00
PAH	ANTHRACENE	29 J	UG/KG	39 J	29.41	10.00
PAH	BENZO(A)ANTHRACENE	110 J	UG/KG	140 J	24.00	30.00
PAH	BENZO(A)PYRENE	75 J	UG/KG	98 J	26.59	23.00
PAH	BENZO(B)FLUORANTHENE	130 J	UG/KG	170 J	26.67	40.00
PAH	BENZO(G,H,I)PERYLENE	47 J	UG/KG	60 J	24.30	13.00
PAH	BENZO(K)FLUORANTHENE	52 J	UG/KG	78 J	40.00	26.00
PAH	CHRYSENE	100 J	UG/KG	140 J	33.33	40.00
PAH	FLUORANTHENE	200 J	UG/KG	240 J	18.18	40.00
PAH	FLUORENE	11 J	UG/KG	16 J	37.04	5.00
PAH	INDENO(1,2,3-CD)PYRENE	40 J	UG/KG	49 J	20.22	9.00
PAH	NAPHTHALENE	ND	UG/KG	12 J	200.00	12.00 N/A < 2X R.L.
PAH	PHENANTHRENE	120 J	UG/KG	150 J	22.22	30.00
PAH	PYRENE	160 J	UG/KG	210 J	27.03	50.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108481

FRACTION	CHEMICAL	IOA-SS-DUP04-081111	UNITS	IOA-SS-EU32-0002	RPD	D	
PAH	BENZO(A)ANTHRACENE	16 J	UG/KG	20 J	22.22	4.00	
PAH	BENZO(A)PYRENE	15 J	UG/KG	20 J	28.57	5.00	
PAH	BENZO(B)FLUORANTHENE	26 J	UG/KG	48 J	59.46	22.00	N/A<3XRL
PAH	BENZO(K)FLUORANTHENE	12 J	UG/KG	20 J	50.00	8.00	
PAH	CHRYSENE	18 J	UG/KG	33 J	58.82	15.00	N/A<3XRL
PAH	FLUORANTHENE	26 J	UG/KG	49 J	61.33	23.00	N/A<3XRL
PAH	PHENANTHRENE	ND	UG/KG	11 J	200.00	11.00	N/A<3XRL
PAH	PYRENE	28 J	UG/KG	55 J	65.06	27.00	N/A<3XRL

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108481

FRACTION	CHEMICAL	IOA-SS-DUP04-081111	UNITS	IOA-SS-EU32-0002	RPD	D
PCB	TOTAL AROCLOR	4	UG/KG	4	0.00	0.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

TETRA TECH NUS, INC **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4976WW

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108481
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 6/ Soil: VOC

IOA-SO-DUP05-081511[1]	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507

1/Trip Blank

IOA-SO-TB01-081511

14/ Soil: PAH

IOA-SO-DUP05-081511[1]	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507
IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608
IOA-SO-RIA82-04A-0608	IOA-SS-DUP04-081111[2]	IOA-SS-EU12-0002
IOA-SS-EU19-0002	IOA-SS-EU32-0002	

6/ Soil: PCB

IOA-SS-DUP04-081111[2]	IOA-SS-EU12-0002	IOA-SS-EU19-0002
IOA-SS-EU21-0002	IOA-SS-EU22-0002	IOA-SS-EU32-0002

[1]Field duplicate of IOA-SO-RIA33-SB14-0507
[2]Field duplicate of IOA-SS-EU32-0002

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

VOC

The project goals with respect to accuracy were met for the volatile organic compound (VOC) data set with the following exceptions. All VOCs in sample IOA-SO-RIA33-SB10-0305 were qualified as estimated due to the poor internal standard area response and due to the low surrogate recoveries. These results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values which may have a minor impact on data usability.

Bromomethane, acetone, methylene chloride, 2-hexanone, and 4-methyl-2-pentanone were qualified as estimated in select samples due to instrument calibration nonconformances. The data usability is not impacted since the sample results are much lower than the project screening limits. Methylene chloride was qualified as estimated in sample IOA-SO-RIA33-SB02-0507 due to the low laboratory control sample (LCS) recovery. These results may be biased low; however, the data usability is not impacted since the sample results are much lower than the project screening limits. The following compounds were qualified as estimated in sample IOA-SO-RIA33-SB10-0305 as a result of the low matrix spike (MS) or matrix spike duplicate (MSD) recoveries: 1,2,4-trichlorobenzene, 1,2-dibromoethane, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,3-dichlorobenzene, 1,4-dichlorobenzene, benzene, bromodichloromethane, bromoform, chlorobenzene, chlorodibromomethane, cis-1,2-dichloroethene, cis-1,3-dichloropropene, ethylbenzene, m,p-xylene, o-xylene, styrene, toluene, trans-1,2-dichloroethene, trans-1,3-dichloropropene, and xylenes (total). These results may be biased low; however, the data usability is not impacted since the sample results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project goals with respect to precision were met for the VOC data set. Methylene chloride was qualified as estimated in sample IOA-SO-RIA33-SB02-0507 due to the exceeded LCS/LCS duplicate (LCSD) relative percent difference (RPD) criterion. However, the data usability is not impacted since the sample results are much lower than the project screening limits. The following compounds were qualified as estimated in sample IOA-SO-RIA33-SB10-0305 as a result of the exceeded MS/MSD RPD criterion: 1,2,4-trichlorobenzene, 1,2-dibromoethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2-hexanone, bromoform, chlorobenzene, cis-1,3-dichloropropene, ethylbenzene, m,p-xylene, styrene, trans-1,3-dichloropropene, and xylenes (total). However, the data usability is not impacted since the sample results are much lower than the project screening limits. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project screening limits (PSLs) were evaluated for non-detected results only [reported at the limit of detection (LOD)] with respect to the projects sensitivity goals. The LODs, including those elevated as a result of laboratory blank contamination, met project screening limits for the VOC data set. Consequently, the data usability was not impacted with regards to sensitivity.

The project goals with respect to laboratory data completeness were met for the VOC data set with the following exceptions. Methyl acetate in samples IOA-SO-DUP05-081511, IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB08-0305, IOA-SO-RIA33-SB10-0305, and IOA-SO-RIA33-SB14-0507 was qualified as rejected due to the lack of recovery of this compound in the associated LCS. Additionally, methylene chloride in sample IOA-SO-RIA33-SB10-0305 was qualified as rejected due to the lack of recovery of this compound in the MS and MSD. These results are not usable for project decisions; thus, the data usability may be impacted with regards to laboratory data completeness.

PAH

The project goals with respect to accuracy were met for the polynuclear aromatic hydrocarbon (PAH) data set with the following exceptions. All PAH compounds in all soil samples were qualified as estimated due to the exceeded extraction holding time criterion. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PAH data set with the following exceptions. Benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported as non-detected (U) at the limit of detection (LOD) in select samples. The LODs for these compounds exceeded the project screening limits in some cases; therefore, the data usability may be impacted with regards to sensitivity.

The project goals with respect to precision and laboratory data completeness were met for the PAH data set. Data usability was not impacted with regards to precision and laboratory data completeness.

PCB

The project goals with respect to accuracy and precision were met for the polychlorinated biphenyls (PCB) data set. Data usability was not impacted with regards to accuracy and precision.

Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and/or 1260 were reported as non-detected (U) at the limit of detection (LOD) in all samples. The LODs met project screening limits for the PCB data set; therefore, the data usability was not impacted with regards to sensitivity.

The project goals with respect to laboratory data completeness were met for the PCB data set with the following exception. Sample IOA-SS-EU20-002 was broken in transit; therefore, PCB analysis was not performed on this sample. Consequently, data usability may be impacted with regards to laboratory data completeness.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **P. CALL** **DATE:** **DECEMBER 14, 2011**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –METALS, PERCENT MOISTURE**
CTO WE11 NAS SOUTH WEYMOUTH
SAMPLE DELIVERY GROUP (SDG) – 1108481

SAMPLES: 16/Soil/

IOA-SO-DUP05-081511	IOA-SO-RIA33-SB02-0507
IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305
IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507
IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608
IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
IOA-SS-DUP04-081111	IOA-SS-EU12-0002
IOA-SS-EU19-0002	IOA-SS-EU21-0002
IOA-SS-EU22-0002	IOA-SS-EU32-0002

Overview

The sample set for NAS South Weymouth, CTO WE11, SDG 1108481 consists of sixteen (16) soil environmental samples. Two (2) field duplicate pairs (IOA-SO-RIA33-SB14-0507 / IOA-SO-DUP05-081511 and IOA-SS-EU32-0002 / IOA-SS-DUP04-081111) were included within this SDG.

All samples, with the exception of IOA-SS-EU21-0002 and IOA-SS-EU22-0002 were analyzed for target analyte list (TAL) metals and percent moisture. Samples IOA-SS-EU21-0002 and IOA-SS-EU22-0002 were analyzed for percent moisture only. The samples were collected on August 9, 11 and 15, 2011 and analyzed by RTI Laboratories, Inc. under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA/QC) criteria. Metals analyses were conducted using SW-846 method 6020A. Mercury analyses were conducted using SW-846 method 7471A. Percent moisture analyses were conducted using ASTM method 2216. An EPA Region I, Tier II data validation was performed on the referenced samples.

These data were evaluated based on the following parameters:

- Data Completeness
* • Holding Times
* • ICP/MS Tune
* • Initial and Continuing Calibrations
- Laboratory Method / Preparation Blank Analyses
* • ICP Interference Results
* • Laboratory Control Sample Recoveries
- Matrix Spike Recoveries
* • ICP Serial Dilution Results
* • Internal Standard Recoveries
* • Field Duplicate Results
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Method / Preparation Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Antimony	0.105 ug/L	26.25 ug/kg
Barium[(1)]	0.00195 mg/kg	9.75 ug/kg
Beryllium	0.066 ug/L	16.5 ug/kg
Cadmium	0.029 ug/L	7.25 ug/kg
Cobalt	0.014 ug/L	3.5 ug/kg
Iron	9.204 ug/L	2301 ug/kg
Potassium[(1)]	0.7604 mg/kg	3802 ug/kg
Selenium	0.359 ug/L	89.75 ug/kg
Vanadium	0.192 ug/L	48.0 ug/kg

(1) Maximum concentration present in a preparation blank.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the action level and less than the LOD for cadmium and selenium were qualified, "U" and raised to the LOD. Positive results less than the action level and greater than the LOD for antimony, beryllium, cadmium and selenium were qualified, "U".

Matrix Spike Recoveries

The matrix spike / matrix spike duplicate percent recoveries for potassium were > 120% quality control limit. The positive results reported for potassium were qualified as estimated, "J".

The matrix spike duplicate percent recovery for manganese was < 30% quality control limit. The positive results reported for manganese were qualified as estimated, "J".

Notes

Positive results reported greater than the method detection limit (MDL) but below the project quantitation limit (PQL) were qualified as estimated, "J".

The nondetected results are reported to the limit of detection (LOD). The LODs were not provided by the laboratory on the Form Is. The LODs were provided in the data base.

The initial and continuing calibration and CRDL standard summary forms were incorrectly filled out by the laboratory. The found values could not be matched up with the raw data as the forms did not contain a sample date and time or the correct results. The raw data was used for initial and continuing calibration and CRDL standard recovery evaluation. The percent recoveries were calculated by the validator.

The initial and continuing blank summary forms were incorrectly filled out by the laboratory. The found values could not be matched up with the raw data as the forms did not contain a sample

date and time or the correct results. It was also noted that the laboratory reported the negative results from the raw data as positive on the blank summary forms. The nondetected results on the summary forms were reported in mg/L units and the positive results were reported in ug/L. The raw data was used for blank evaluation.

The ICP serial dilution summary form was incorrectly filled out by the laboratory. The sample results reported for the original analyses did not match the sample results reported on the analytical report. The ICP serial dilution percent differences were calculated by the validator using the raw data.

The Form 14s (analysis run logs) were not filled out correctly by the laboratory. Initial and continuing calibrations were not listed in the run log and several of the analytes were marked as analyzed on a certain date and time when the raw data shows otherwise.

The matrix spike / matrix spike duplicate relative percent differences for calcium, potassium and sodium were > 20% quality control limit. No validation actions are required for matrix spike / matrix spike duplicate relative percent difference noncompliances.

Executive Summary

Laboratory Performance: Several contaminants were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: The matrix spike and/or matrix spike duplicate percent recoveries for potassium and manganese were outside the quality control limits. Positive results reported greater than the MDL but below the PQL were qualified as estimated.

The data for these analyses were reviewed with reference to the Region 1 EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, Part VI, November 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009.

The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech NUS
Terri L. Solomon
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02073 SDG: 1108481 FRACTION: M MEDIA: SOIL	NSAMPLE	IOA-SO-DUP05-081511			IOA-SO-RIA33-SB02-0507			IOA-SO-RIA33-SB04-0305			IOA-SO-RIA33-SB08-0305		
	LAB_ID	1108481-015B			1108481-018B			1108481-013B			1108481-014B		
	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011			8/15/2011		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.9			94.1			97.2			97.8		
	DUP_OF	IOA-SO-RIA33-SB14-0507											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7000000			7300000			6800000			7300000		
ANTIMONY		450			300			83	U	A	56	U	A
ARSENIC		1500			1900			1700			1700		
BARIUM		14000			16000			13000			12000		
BERYLLIUM		420			370			400			540		
CADMIUM		200			190			180			190		
CALCIUM		1100000			1500000			1000000			1100000		
CHROMIUM		7300			10000			11000			9700		
COBALT		6600			4300			4700			3900		
COPPER		8300			9600			9700			9400		
IRON		14000000			13000000			14000000			18000000		
LEAD		7500			20000			6600			6500		
MAGNESIUM		2200000			2100000			2400000			2300000		
MANGANESE		320000	J	D	240000	J	D	170000	J	D	310000	J	D
MERCURY		8.5	J	P	18	J	P	2.2	J	P	2	J	P
NICKEL		7100			8500			7800			7800		
POTASSIUM		400000	J	D	290000	J	D	440000	J	D	360000	J	D
SELENIUM		550	U	A	650	U	A	650	U	A	560	U	
SILVER		81	U		92	U		84	U		80	U	
SODIUM		47000	J	P	57000	J	P	50000	J	P	52000	J	P
THALLIUM		74	U		87	U		87	U		74	U	
VANADIUM		14000			20000			15000			16000		
ZINC		36000			42000			38000			40000		

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA33-SB10-0305			IOA-SO-RIA33-SB14-0507			IOA-SO-RIA82-01A-0608			IOA-SO-RIA82-02A-0608		
SDG: 1108481	LAB_ID	1108481-016B			1108481-017B			1108481-008B			1108481-009B		
FRACTION: M	SAMP_DATE	8/15/2011			8/15/2011			8/9/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.4			95.9			90.0			82.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		6700000			7900000			3600000			4200000		
ANTIMONY		130	U	A	530			66	U	A	94	U	A
ARSENIC		2300			1500			220	J	P	180	J	P
BARIUM		17000			15000			7800			11000		
BERYLLIUM		520			380			170	U	A	260	J	P
CADMIUM		280			180	J	P	83	U	A	150		
CALCIUM		1700000			1100000			820000			1300000		
CHROMIUM		8900			9200			4700			6300		
COBALT		4700			6800			1900			2300		
COPPER		12000			9000			3600			4600		
IRON		11000000			14000000			4900000			6000000		
LEAD		16000			8100			2600			3600		
MAGNESIUM		2000000			2400000			1100000			1300000		
MANGANESE		180000	J	D	320000	J	D	65000	J	D	90000	J	D
MERCURY		12	J	P	7.7	J	P	10	U		13	U	
NICKEL		8900			8900			3800			4500		
POTASSIUM		360000	J	D	360000	J	D	250000	J	D	310000	J	D
SELENIUM		530	U	A	670	U		620	U	A	560	U	
SILVER		90	U		82	U		82	U		86	U	
SODIUM		58000	J	P	46000	J	P	36000	J	P	51000	J	P
THALLIUM		90	J	P	90	U		83	U		74	U	
VANADIUM		15000			15000			8500			11000		
ZINC		40000			33000			17000			19000		

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA82-03A-0608			IOA-SO-RIA82-04A-0608			IOA-SS-DUP04-081111			IOA-SS-EU12-0002		
SDG: 1108481	LAB_ID	1108481-010B			1108481-011B			1108481-005C			1108481-007C		
FRACTION: M	SAMP_DATE	8/11/2011			8/11/2011			8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.6			89.0			86.6			92.7		
	DUP_OF							IOA-SS-EU32-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4600000			4400000			4500000			7600000		
ANTIMONY		69	U	A	65	U	A	72	U	A	89	U	A
ARSENIC		570			130	J	P	1200			1200		
BARIUM		9800			9500			14000			15000		
BERYLLIUM		270			260	U	A	320	J	P	350	J	P
CADMIUM		140			110	U	A	150	J	P	190	J	P
CALCIUM		1000000			1100000			710000			1400000		
CHROMIUM		6200			5500			5200			9200		
COBALT		2600			2600			3600			3900		
COPPER		6100			6500			7400			7100		
IRON		7100000			6000000			8100000			13000000		
LEAD		3500			3500			6500			11000		
MAGNESIUM		1600000			1400000			1600000			1900000		
MANGANESE		92000	J	D	82000	J	D	230000	J	D	220000	J	D
MERCURY		11	U		10	U		2	J	P	17	J	P
NICKEL		5100			5000			5500			7200		
POTASSIUM		310000	J	D	270000	J	D	250000	J	D	340000	J	D
SELENIUM		480	U		680	U		640	U		760	U	A
SILVER		79	U		81	U		68	U		82	U	
SODIUM		41000	J	P	43000	J	P	34000	J	P	43000	J	P
THALLIUM		65	U		91	U		86	U		100	U	
VANADIUM		12000			9200			11000			15000		
ZINC		26000			23000			29000			33000		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU19-0002			IOA-SS-EU32-0002		
SDG: 1108481	LAB_ID	1108481-004C			1108481-003C		
FRACTION: M	SAMP_DATE	8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	89.4			89.5		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		7400000			4800000		
ANTIMONY		97	U	A	88	U	A
ARSENIC		5900			1100		
BARIUM		21000			11000		
BERYLLIUM		340			360	J	P
CADMIUM		210			130	U	A
CALCIUM		810000			760000		
CHROMIUM		8900			6200		
COBALT		3900			3700		
COPPER		8500			7800		
IRON		10000000			8800000		
LEAD		27000			7100		
MAGNESIUM		1700000			1700000		
MANGANESE		180000	J	D	210000	J	D
MERCURY		31			11	U	
NICKEL		8000			6700		
POTASSIUM		240000	J	D	280000	J	D
SELENIUM		580	U	A	700	U	
SILVER		84	U		96	U	
SODIUM		38000	J	P	37000	J	P
THALLIUM		78	U		93	U	
VANADIUM		15000			12000		
ZINC		35000			30000		

PROJ_NO: 02073	NSAMPLE	IOA-SO-DUP05-081511			IOA-SO-RIA33-SB02-0507			IOA-SO-RIA33-SB04-0305			IOA-SO-RIA33-SB08-0305		
SDG: 1108481	LAB_ID	1108481-015B			1108481-018B			1108481-013B			1108481-014B		
FRACTION: MISC	SAMP_DATE	8/15/2011			8/15/2011			8/15/2011			8/15/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	IOA-SO-RIA33-SB14-0507											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		4			5			2			2		

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA33-SB10-0305			IOA-SO-RIA33-SB14-0507			IOA-SO-RIA82-01A-0608			IOA-SO-RIA82-02A-0608		
SDG: 1108481	LAB_ID	1108481-016B			1108481-017B			1108481-008B			1108481-009B		
FRACTION: MISC	SAMP_DATE	8/15/2011			8/15/2011			8/9/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		4			4			10			18		

PROJ_NO: 02073	NSAMPLE	IOA-SO-RIA82-03A-0608			IOA-SO-RIA82-04A-0608			IOA-SS-DUP04-081111			IOA-SS-EU12-0002		
SDG: 1108481	LAB_ID	1108481-010B			1108481-011B			1108481-005C			1108481-007C		
FRACTION: MISC	SAMP_DATE	8/11/2011			8/11/2011			8/11/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							IOA-SS-EU32-0002					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		8			11			13			7		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU19-0002			IOA-SS-EU21-0002			IOA-SS-EU22-0002			IOA-SS-EU32-0002		
SDG: 1108481	LAB_ID	1108481-004C			1108481-001A			1108481-012A			1108481-003C		
FRACTION: MISC	SAMP_DATE	8/11/2011			8/11/2011			8/15/2011			8/11/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	%			%			%			%		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT MOISTURE		11			15			4			11		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

RTI LABORATORIES, INC.

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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108481

Date Reported: 11/18/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	7,000,000	150,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Arsenic	1,500	220		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Barium	14,000	3,700		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Beryllium	420	300		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Cadmium	200	150		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Chromium	7,300	1,500		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Cobalt	6,600	740		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Copper	8,300	740		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Iron	14,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Lead	7,500	150		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Magnesium	2,200,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Manganese	320,000	15,000		µg/Kg-dry	400	9/8/2011 2:07:00 PM
Nickel	7,100	1,500		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Potassium	400,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:58 PM
Selenium	370	740	J	µg/Kg-dry	20	9/8/2011 10:48:10 AM
Sodium	47,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:27:58 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:48:10 AM
Vanadium	14,000	590		µg/Kg-dry	20	9/8/2011 10:48:10 AM
Zinc	36,000	7,400		µg/Kg-dry	20	9/8/2011 10:48:10 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A** **SW3050B**		Analyst: **at**
Antimony	450	200		µg/Kg-dry	10	9/8/2011 6:44:02 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:44:02 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	8.5	29	J	µg/Kg-dry	1	8/24/2011 2:56:36 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C** **SW3550C**		Analyst: **MT 3**
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 6:58:00 PM
~~Acenaphthene~~	~~ND~~	~~170~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 6:58:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

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Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-015 **Matrix:** SOIL

Client Sample ID IOA-SO-DUP05-081511

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RHS**
Vinyl chloride	ND	0.55	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Xylenes, Total	ND	2.1	U	µg/Kg-dry	0.66	8/19/2011 10:44:00 PM
Surr: 4-Bromofluorobenzene	99.4	90.5-116		%REC	0.66	8/19/2011 10:44:00 PM
Surr: Dibromofluoromethane	88.2	85-115		%REC	0.66	8/19/2011 10:44:00 PM
Surr: Toluene-d8	93.7	87.2-110		%REC	0.66	8/19/2011 10:44:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.1	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	7,300,000	170,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Arsenic	1,900	260		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Barium	16,000	4,400		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Beryllium	370	350		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Cadmium	190	170		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Calcium	1,500,000	170,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Chromium	10,000	1,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Cobalt	4,300	870		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Copper	9,600	870		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Iron	13,000,000	700,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Lead	20,000	170		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Magnesium	2,100,000	87,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Manganese	240,000	17,000		µg/Kg-dry	400	9/8/2011 2:08:40 PM
Nickel	8,500	1,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Potassium	290,000	87,000		µg/Kg-dry	20	9/8/2011 12:29:37 PM
Selenium	310	870	J	µg/Kg-dry	20	9/8/2011 10:53:45 AM
Sodium	57,000	87,000	J	µg/Kg-dry	20	9/8/2011 12:29:37 PM
Thallium	ND	350	U	µg/Kg-dry	20	9/8/2011 10:53:45 AM
Vanadium	20,000	700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
Zinc	42,000	8,700		µg/Kg-dry	20	9/8/2011 10:53:45 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	300	230		µg/Kg-dry	10	9/8/2011 6:45:35 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:45:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	18	31	J	µg/Kg-dry	1	8/24/2011 2:59:36 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	19	170	JH	µg/Kg-dry	1	10/7/2011 8:09:00 PM
~~Acenaphthene~~	~~73~~	~~170~~	~~JH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 8:09:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-018 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB02-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH**
Vinyl chloride	ND	0.55	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Xylenes, Total	ND	2.1	UH	µg/Kg-dry	0.65	8/29/2011 9:05:00 PM
Surr: 4-Bromofluorobenzene	95.3	90.5-116	H	%REC	0.65	8/29/2011 9:05:00 PM
Surr: Dibromofluoromethane	90.1	85-115	H	%REC	0.65	8/29/2011 9:05:00 PM
Surr: Toluene-d8	88.0	87.2-110	H	%REC	0.65	8/29/2011 9:05:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	5.9	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:					
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Estimated concentration	M	Manual Integration used to determine area response	
	ND	Not Detected at the Reporting Limit	PL	Permit Limit	
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,800,000	170,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Arsenic	1,700	260		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Barium	13,000	4,400		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Beryllium	400	350		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Cadmium	180	170		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Calcium	1,000,000	170,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Chromium	11,000	1,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Cobalt	4,700	870		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Copper	9,700	870		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Iron	14,000,000	700,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Lead	6,600	170		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Magnesium	2,400,000	87,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Manganese	170,000	17,000		µg/Kg-dry	400	9/8/2011 2:05:21 PM
Nickel	7,800	1,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Potassium	440,000	87,000		µg/Kg-dry	20	9/8/2011 12:26:18 PM
Selenium	450	870	J	µg/Kg-dry	20	9/8/2011 10:44:58 AM
Sodium	50,000	87,000	J	µg/Kg-dry	20	9/8/2011 12:26:18 PM
Thallium	ND	350	U	µg/Kg-dry	20	9/8/2011 10:44:58 AM
Vanadium	15,000	700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
Zinc	38,000	8,700		µg/Kg-dry	20	9/8/2011 10:44:58 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	83	210	J	µg/Kg-dry	10	9/8/2011 6:42:29 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:42:29 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.2	29	J	µg/Kg-dry	1	8/24/2011 2:50:49 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:11:00 PM
~~Acenaphthene~~	~~ND~~	~~160~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 6:11:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Livonia, MI 48150
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:10:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-013 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB04-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.49	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Xylenes, Total	ND	1.8	U	µg/Kg-dry	0.59	8/19/2011 9:51:00 PM
Surr: 4-Bromofluorobenzene	96.6	90.5-116		%REC	0.59	8/19/2011 9:51:00 PM
Surr: Dibromofluoromethane	92.9	85-115		%REC	0.59	8/19/2011 9:51:00 PM
Surr: Toluene-d8	89.5	87.2-110		%REC	0.59	8/19/2011 9:51:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	2.8	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	7,300,000	150,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Arsenic	1,700	220		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Barium	12,000	3,700		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Beryllium	540	300		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Cadmium	190	150		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Calcium	1,100,000	150,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Chromium	9,700	1,500		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Cobalt	3,900	740		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Copper	9,400	740		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Iron	18,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Lead	6,500	150		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Magnesium	2,300,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Manganese	310,000	15,000		µg/Kg-dry	400	9/8/2011 2:06:10 PM
Nickel	7,800	1,500		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Potassium	360,000	74,000		µg/Kg-dry	20	9/8/2011 12:27:08 PM
Selenium	ND	740	U	µg/Kg-dry	20	9/8/2011 10:46:34 AM
Sodium	52,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:27:08 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:46:34 AM
Vanadium	16,000	590		µg/Kg-dry	20	9/8/2011 10:46:34 AM
Zinc	40,000	7,400		µg/Kg-dry	20	9/8/2011 10:46:34 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A** **SW3050B**		Analyst: **at**
Antimony	56	200	J	µg/Kg-dry	10	9/8/2011 6:43:15 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:43:15 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	30	J	µg/Kg-dry	1	8/24/2011 2:52:18 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C** **SW3550C**~~		~~Analyst: **MT 3**~~
2-Methylnaphthalene	ND	160	UH	µg/Kg-dry	1	10/7/2011 6:35:00 PM
~~Acenaphthene~~	~~ND~~	~~160~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 6:35:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:20:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-014 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB08-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.52	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Xylenes, Total	ND	1.9	U	µg/Kg-dry	0.63	8/19/2011 10:18:00 PM
Surr: 4-Bromofluorobenzene	98.6	90.5-116		%REC	0.63	8/19/2011 10:18:00 PM
Surr: Dibromofluoromethane	91.9	85-115		%REC	0.63	8/19/2011 10:18:00 PM
Surr: Toluene-d8	93.9	87.2-110		%REC	0.63	8/19/2011 10:18:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	2.2	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	6,700,000	140,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Arsenic	2,300	210		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Barium	17,000	3,500		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Beryllium	520	280		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Cadmium	280	140		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Calcium	1,700,000	140,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Chromium	8,900	1,400		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Cobalt	4,700	690		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Copper	12,000	690		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Iron	11,000,000	560,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Lead	16,000	140		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Magnesium	2,000,000	69,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Manganese	180,000	14,000		µg/Kg-dry	400	9/8/2011 1:40:19 PM
Nickel	8,900	1,400		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Potassium	360,000	69,000		µg/Kg-dry	20	9/8/2011 11:59:53 AM
Selenium	530	690	J	µg/Kg-dry	20	9/8/2011 10:23:37 AM
Sodium	58,000	69,000	J	µg/Kg-dry	20	9/8/2011 11:59:53 AM
Thallium	90	280	J	µg/Kg-dry	20	9/8/2011 10:23:37 AM
Vanadium	15,000	560		µg/Kg-dry	20	9/8/2011 10:23:37 AM
Zinc	40,000	6,900		µg/Kg-dry	20	9/8/2011 10:23:37 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	130	230	J	µg/Kg-dry	10	9/8/2011 6:30:48 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:30:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	12	29	J	µg/Kg-dry	1	8/24/2011 2:31:48 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS**~~ **SEMI-VOLATILE ORGANIC COMPOUNDS**				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	~~33~~	170	JH	µg/Kg-dry	1	10/7/2011 7:22:00 PM
~~Acenaphthene~~	~~19~~	~~170~~	~~JH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 7:22:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 1:40:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-016 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB10-0305

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH3**
Vinyl chloride	ND	0.65	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Xylenes, Total	ND	2.4	U	µg/Kg-dry	0.77	8/19/2011 7:36:00 PM
Surr: 4-Bromofluorobenzene	110	90.5-116		%REC	0.77	8/19/2011 7:36:00 PM
Surr: Dibromofluoromethane	83.3	85-115	S	%REC	0.77	8/19/2011 7:36:00 PM
Surr: Toluene-d8	73.7	87.2-110	S	%REC	0.77	8/19/2011 7:36:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.6	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3060B**	Analyst: **AV**
Aluminum	7,900,000	180,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Arsenic	1,500	270		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Barium	15,000	4,500		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Beryllium	380	360		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Cadmium	180	180	J	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Chromium	9,200	1,800		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Cobalt	6,800	900		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Copper	9,000	900		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Iron	14,000,000	720,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Lead	8,100	180		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Magnesium	2,400,000	90,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Manganese	320,000	18,000		µg/Kg-dry	400	9/8/2011 2:07:50 PM
Nickel	8,900	1,800		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Potassium	360,000	90,000		µg/Kg-dry	20	9/8/2011 12:28:47 PM
Selenium	ND	900	U	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Sodium	46,000	90,000	J	µg/Kg-dry	20	9/8/2011 12:28:47 PM
Thallium	ND	360	U	µg/Kg-dry	20	9/8/2011 10:49:46 AM
Vanadium	15,000	720		µg/Kg-dry	20	9/8/2011 10:49:46 AM
Zinc	33,000	9,000		µg/Kg-dry	20	9/8/2011 10:49:46 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	530	210		µg/Kg-dry	10	9/8/2011 6:44:48 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:44:48 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	7.7	32	J	µg/Kg-dry	1	8/24/2011 2:58:09 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	7.6	170	JH	µg/Kg-dry	1	10/7/2011 7:46:00 PM
~~Acenaphthene~~	~~ND~~	~~170~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 7:46:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/15/2011 2:00:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-017 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA33-SB14-0507

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS				**SW8260B**		Analyst: **RH**
Vinyl chloride	ND	0.64	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Xylenes, Total	ND	2.4	U	µg/Kg-dry	0.77	8/19/2011 11:11:00 PM
Surr: 4-Bromofluorobenzene	98.3	90.5-116		%REC	0.77	8/19/2011 11:11:00 PM
Surr: Dibromofluoromethane	90.4	85-115		%REC	0.77	8/19/2011 11:11:00 PM
Surr: Toluene-d8	95.8	87.2-110		%REC	0.77	8/19/2011 11:11:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	4.1	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:					
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Estimated concentration	M	Manual Integration used to determine area response	
	ND	Not Detected at the Reporting Limit	PL	Permit Limit	
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 3:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-008 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-01A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	3,600,000	170,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Arsenic	220	250	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Barium	7,800	4,100		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Beryllium	170	330	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Cadmium	74	170	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Calcium	820,000	170,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Chromium	4,700	1,700		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Cobalt	1,900	830		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Copper	3,600	830		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Iron	4,900,000	660,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Lead	2,600	170		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Magnesium	1,100,000	83,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Manganese	65,000	17,000		µg/Kg-dry	400	9/8/2011 2:02:01 PM
Nickel	3,800	1,700		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Potassium	250,000	83,000		µg/Kg-dry	20	9/8/2011 12:22:58 PM
Selenium	320	830	J	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Sodium	36,000	83,000	J	µg/Kg-dry	20	9/8/2011 12:22:58 PM
Thallium	ND	330	U	µg/Kg-dry	20	9/8/2011 10:38:33 AM
Vanadium	8,500	660		µg/Kg-dry	20	9/8/2011 10:38:33 AM
Zinc	17,000	8,300		µg/Kg-dry	20	9/8/2011 10:38:33 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	66	210	J	µg/Kg-dry	10	9/8/2011 6:34:44 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:34:44 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	31	U	µg/Kg-dry	1	8/24/2011 2:41:54 PM
~~POLYNUCLEAR AROMATIC HYDROCARBONS~~ **SEMI-VOLATILE ORGANIC COMPOUNDS**				~~SW8270C~~ **SW8270C**	~~SW3550C~~ **SW3550C**	~~Analyst: MT 3~~
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
~~Acenaphthene~~	~~ND~~	~~180~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 6:43:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/9/2011 3:25:00 PM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-008 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-01A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS				**SW8270C**	**SW3550C**	Analyst: **MT-S**
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 6:43:00 PM
Surr: 2-Fluorobiphenyl	63.2	45-105	H	%REC	1	10/7/2011 6:43:00 PM
Surr: Nitrobenzene-d5	67.1	35-100	H	%REC	1	10/7/2011 6:43:00 PM
Surr: Terphenyl-d14	87.4	30-126	H	%REC	1	10/7/2011 6:43:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	10	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: 1108481

Date Reported: 11/18/2011

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-009 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-02A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B**		Analyst: **AV**
Aluminum	4,200,000	150,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Arsenic	180	220	J	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Barium	11,000	3,700		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Beryllium	260	300	J	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Cadmium	150	150		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Calcium	1,300,000	150,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Chromium	6,300	1,500		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Cobalt	2,300	740		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Copper	4,600	740		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Iron	6,000,000	590,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Lead	3,600	150		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Magnesium	1,300,000	74,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Manganese	90,000	15,000		µg/Kg-dry	400	9/8/2011 2:02:51 PM
Nickel	4,500	1,500		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Potassium	310,000	74,000		µg/Kg-dry	20	9/8/2011 12:23:49 PM
Selenium	ND	740	U	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Sodium	51,000	74,000	J	µg/Kg-dry	20	9/8/2011 12:23:49 PM
Thallium	ND	300	U	µg/Kg-dry	20	9/8/2011 10:40:10 AM
Vanadium	11,000	590		µg/Kg-dry	20	9/8/2011 10:40:10 AM
Zinc	19,000	7,400		µg/Kg-dry	20	9/8/2011 10:40:10 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A** **SW3050B**		Analyst: **at**
Antimony	94	220	J	µg/Kg-dry	10	9/8/2011 6:40:09 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:40:09 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	38	U	µg/Kg-dry	1	8/24/2011 2:46:24 PM
~~POLYNUCLEAR AROMATIC HYDROCARBONS~~ **SEMI-VOLATILE ORGANIC COMPOUNDS**				~~SW8270C~~ **SW3550C**		~~Analyst: MT 3~~
2-Methylnaphthalene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
~~Acenaphthene~~	~~ND~~	~~190~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 7:06:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-009 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-02A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
~~POLYNUCLEAR AROMATIC HYDROCARBONS~~				**~~SW8270C~~**	**~~SW3550C~~**	**~~Analyst: MT-3~~**
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthylene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(a)anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(a)pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(b)fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(g,h,i)perylene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Benzo(k)fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Chrysene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Dibenzo (a,h) anthracene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Fluoranthene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Fluorene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Naphthalene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Phenanthrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Pyrene	ND	190	UH	µg/Kg-dry	1	10/7/2011 7:06:00 PM
Surr: 2-Fluorobiphenyl	62.2	45-105	H	%REC	1	10/7/2011 7:06:00 PM
Surr: Nitrobenzene-d5	74.4	35-100	H	%REC	1	10/7/2011 7:06:00 PM
~~Surr: Terphenyl-d14~~	~~94.0~~	~~30-125~~	~~H~~	~~%REC~~	~~1~~	~~10/7/2011 7:06:00 PM~~
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	18	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:55:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-010 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-03A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,600,000	130,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Arsenic	570	190		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Barium	9,800	3,200		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Beryllium	270	260		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Cadmium	140	130		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Calcium	1,000,000	130,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Chromium	6,200	1,300		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Cobalt	2,600	650		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Copper	6,100	650		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Iron	7,100,000	520,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Lead	3,500	130		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Magnesium	1,600,000	65,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Manganese	92,000	13,000		µg/Kg-dry	400	9/8/2011 2:03:42 PM
Nickel	5,100	1,300		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Potassium	310,000	65,000		µg/Kg-dry	20	9/8/2011 12:24:40 PM
Selenium	ND	650	U	µg/Kg-dry	20	9/8/2011 10:41:47 AM
Sodium	41,000	65,000	J	µg/Kg-dry	20	9/8/2011 12:24:40 PM
Thallium	ND	260	U	µg/Kg-dry	20	9/8/2011 10:41:47 AM
Vanadium	12,000	520		µg/Kg-dry	20	9/8/2011 10:41:47 AM
Zinc	26,000	6,500		µg/Kg-dry	20	9/8/2011 10:41:47 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	69	200	J	µg/Kg-dry	10	9/8/2011 6:40:57 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:40:57 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	32	U	µg/Kg-dry	1	8/24/2011 2:47:52 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
~~Acenaphthene~~	~~ND~~	~~170~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 7:30:00 PM~~

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:55:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-010 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-03A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
~~POLYNUCLEAR AROMATIC HYDROCARBONS~~				~~SW8270C~~	~~SW3550C~~	~~Analyst: MT 3~~
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthylene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(a)anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(a)pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(b)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(g,h,i)perylene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Benzo(k)fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Chrysene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Dibenzo (a,h) anthracene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Fluoranthene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Fluorene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Naphthalene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Phenanthrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Pyrene	ND	170	UH	µg/Kg-dry	1	10/7/2011 7:30:00 PM
Surr: 2-Fluorobiphenyl	64.8	45-105	H	%REC	1	10/7/2011 7:30:00 PM
Surr: Nitrobenzene-d5	69.8	35-100	H	%REC	1	10/7/2011 7:30:00 PM
~~Surr: Terphenyl-d14~~	~~83.3~~	~~30-125~~	~~H~~	~~%REC~~	~~1~~	~~10/7/2011 7:30:00 PM~~
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	8.4	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 10:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-011 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-04A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **AV**
Aluminum	4,400,000	180,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Arsenic	130	270	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Barium	9,500	4,500		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Beryllium	260	360	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Cadmium	110	180	J	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Calcium	1,100,000	180,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Chromium	5,500	1,800		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Cobalt	2,600	910		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Copper	6,500	910		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Iron	6,000,000	730,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Lead	3,500	180		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Magnesium	1,400,000	91,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Manganese	82,000	18,000		µg/Kg-dry	400	9/8/2011 2:04:31 PM
Nickel	5,000	1,800		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Potassium	270,000	91,000		µg/Kg-dry	20	9/8/2011 12:25:29 PM
Selenium	ND	910	U	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Sodium	43,000	91,000	J	µg/Kg-dry	20	9/8/2011 12:25:29 PM
Thallium	ND	360	U	µg/Kg-dry	20	9/8/2011 10:43:22 AM
Vanadium	9,200	730		µg/Kg-dry	20	9/8/2011 10:43:22 AM
Zinc	23,000	9,100		µg/Kg-dry	20	9/8/2011 10:43:22 AM
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	65	200	J	µg/Kg-dry	10	9/8/2011 6:41:43 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:41:43 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	30	U	µg/Kg-dry	1	8/24/2011 2:49:20 PM
~~**POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS**~~				~~**SW8270C**~~	~~**SW3550C**~~	~~Analyst: **MT 3**~~
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
~~Acenaphthene~~	~~ND~~	~~180~~	~~UH~~	~~µg/Kg-dry~~	~~1~~	~~10/7/2011 7:53:00 PM~~

Qualifiers:

*X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 10:35:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-011 **Matrix:** SOIL

Client Sample ID IOA-SO-RIA82-04A-0608

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYNUCLEAR AROMATIC HYDROCARBONS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(a)anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(a)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(b)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Benzo(k)fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Chrysene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Fluoranthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 7:53:00 PM
Surr: 2-Fluorobiphenyl	75.9	45-105	H	%REC	1	10/7/2011 7:53:00 PM
Surr: Nitrobenzene-d5	81.2	35-100	H	%REC	1	10/7/2011 7:53:00 PM
Surr: Terphenyl-d14	99.6	30-125	H	%REC	1	10/7/2011 7:53:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:				
	*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated concentration	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-005 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP04-081111

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C**		Analyst: **MB**
Aroclor 1016	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1221	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1232	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1242	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1248	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1254	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Aroclor 1260	ND	38	U	µg/Kg-dry	1	8/19/2011 2:30:44 PM
Total PCBs	ND	38		µg/Kg-dry	1	8/19/2011 2:30:44 PM
Surr: Decachlorobiphenyl	118	60-125		%REC	1	8/19/2011 2:30:44 PM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 2:30:44 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A** **SW3050B**		Analyst: **AV**
METALS, ICP/MS						
Aluminum	4,500,000	170,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Arsenic	1,200	260		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Barium	14,000	4,300		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Beryllium	320	340	J	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Cadmium	150	170	J	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Calcium	710,000	170,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Chromium	5,200	1,700		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Cobalt	3,600	860		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Copper	7,400	860		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Iron	8,100,000	680,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Lead	6,500	170		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Magnesium	1,600,000	86,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Manganese	230,000	17,000		µg/Kg-dry	400	9/8/2011 1:55:31 PM
Nickel	5,500	1,700		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Potassium	250,000	86,000		µg/Kg-dry	20	9/8/2011 12:02:41 PM
Selenium	ND	860	U	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Sodium	34,000	86,000	J	µg/Kg-dry	20	9/8/2011 12:02:41 PM
Thallium	ND	340	U	µg/Kg-dry	20	9/8/2011 10:28:26 AM
Vanadium	11,000	680		µg/Kg-dry	20	9/8/2011 10:28:26 AM
Zinc	29,000	8,600		µg/Kg-dry	20	9/8/2011 10:28:26 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-005 **Matrix:** SOIL

Client Sample ID IOA-SS-DUP04-081111

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	72	170	J	µg/Kg-dry	10	9/8/2011 6:33:09 PM
Silver	ND	100	U	µg/Kg-dry	10	9/8/2011 6:33:09 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	2.0	35	J	µg/Kg-dry	1	8/24/2011 2:39:00 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(a)anthracene	16	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(a)pyrene	15	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(b)fluoranthene	26	180	JmH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Benzo(k)fluoranthene	12	180	JmH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Chrysene	18	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Fluoranthene	26	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Phenanthrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Pyrene	28	180	JH	µg/Kg-dry	1	10/7/2011 5:56:00 PM
Surr: 2-Fluorobiphenyl	64.3	45-105	H	%REC	1	10/7/2011 5:56:00 PM
Surr: Nitrobenzene-d5	73.6	35-100	H	%REC	1	10/7/2011 5:56:00 PM
Surr: Terphenyl-d14	90.9	30-125	H	%REC	1	10/7/2011 5:56:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	13	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU12-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1221	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1232	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1242	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1248	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1254	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Aroclor 1260	ND	35	U	µg/Kg-dry	1	8/29/2011 5:03:51 AM
Total PCBs	ND	35		µg/Kg-dry	1	8/29/2011 5:03:51 AM
Surr: Decachlorobiphenyl	136	60-125	S	%REC	1	8/29/2011 5:03:51 AM
Surr: Tetrachloro-m-xylene	124	60-125		%REC	1	8/29/2011 5:03:51 AM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	7,600,000	200,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Arsenic	1,200	300		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Barium	15,000	5,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Beryllium	350	400	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Cadmium	190	200	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Calcium	1,400,000	200,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Chromium	9,200	2,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Cobalt	3,900	1,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Copper	7,100	1,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Iron	13,000,000	810,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Lead	11,000	200		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Magnesium	1,900,000	100,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Manganese	220,000	20,000		µg/Kg-dry	400	9/8/2011 1:56:21 PM
Nickel	7,200	2,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Potassium	340,000	100,000		µg/Kg-dry	20	9/8/2011 12:03:32 PM
Selenium	750	1,000	J	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Sodium	43,000	100,000	J	µg/Kg-dry	20	9/8/2011 12:03:32 PM
Thallium	ND	400	U	µg/Kg-dry	20	9/8/2011 10:30:03 AM
Vanadium	15,000	810		µg/Kg-dry	20	9/8/2011 10:30:03 AM
Zinc	33,000	10,000		µg/Kg-dry	20	9/8/2011 10:30:03 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Estimated concentration
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
M	Manual Integration used to determine area response
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 9:05:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-007 **Matrix:** SOIL

Client Sample ID IOA-SS-EU12-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	89	210	J	µg/Kg-dry	10	9/8/2011 6:33:56 PM
Silver	ND	120	U	µg/Kg-dry	10	9/8/2011 6:33:56 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	17	31	J	µg/Kg-dry	1	8/24/2011 2:40:27 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT**
2-Methylnaphthalene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Acenaphthene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Acenaphthylene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Anthracene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(a)anthracene	99	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(a)pyrene	66	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(b)fluoranthene	100	860	JmH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(g,h,i)perylene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Benzo(k)fluoranthene	ND	860	mUH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Chrysene	91	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Dibenzo (a,h) anthracene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Fluoranthene	150	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Fluorene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Indeno(1,2,3-cd)pyrene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Naphthalene	ND	860	UH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Phenanthrene	63	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Pyrene	170	860	JH	µg/Kg-dry	5	10/7/2011 6:20:00 PM
Surr: 2-Fluorobiphenyl	83.0	45-105	H	%REC	5	10/7/2011 6:20:00 PM
Surr: Nitrobenzene-d5	81.4	35-100	H	%REC	5	10/7/2011 6:20:00 PM
Surr: Terphenyl-d14	101	30-125	H	%REC	5	10/7/2011 6:20:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	7.3	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU19-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082**	**SW3550C**	Analyst: **MB**
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 2:06:36 PM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 2:06:36 PM
Surr: Decachlorobiphenyl	105	60-125		%REC	1	8/19/2011 2:06:36 PM
Surr: Tetrachloro-m-xylene	99.3	60-125		%REC	1	8/19/2011 2:06:36 PM
TARGET ANALYTE LIST METALS (23)				**SW6020A**	**SW3050B**	Analyst: **AV**
METALS, ICP/MS						
Aluminum	7,400,000	160,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Arsenic	5,900	230		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Barium	21,000	3,900		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Beryllium	340	310		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Cadmium	210	160		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Calcium	810,000	160,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Chromium	8,900	1,600		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Cobalt	3,900	780		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Copper	8,500	780		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Iron	10,000,000	620,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Lead	27,000	160		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Magnesium	1,700,000	78,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Manganese	180,000	16,000		µg/Kg-dry	400	9/8/2011 1:54:41 PM
Nickel	8,000	1,600		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Potassium	240,000	78,000		µg/Kg-dry	20	9/8/2011 12:01:51 PM
Selenium	230	780	J	µg/Kg-dry	20	9/8/2011 10:26:50 AM
Sodium	38,000	78,000	J	µg/Kg-dry	20	9/8/2011 12:01:51 PM
Thallium	ND	310	U	µg/Kg-dry	20	9/8/2011 10:26:50 AM
Vanadium	15,000	620		µg/Kg-dry	20	9/8/2011 10:26:50 AM
Zinc	35,000	7,800		µg/Kg-dry	20	9/8/2011 10:26:50 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:45:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-004 **Matrix:** SOIL

Client Sample ID IOA-SS-EU19-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	97	210	J	µg/Kg-dry	10	9/8/2011 6:32:22 PM
Silver	ND	130	U	µg/Kg-dry	10	9/8/2011 6:32:22 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	31	30		µg/Kg-dry	1	8/24/2011 2:37:33 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT-6**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(a)anthracene	48	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(a)pyrene	46	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(b)fluoranthene	69	180	JmH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(g,h,i)perylene	27	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Benzo(k)fluoranthene	25	180	JmH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Chrysene	52	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Fluoranthene	74	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Phenanthrene	27	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Pyrene	97	180	JH	µg/Kg-dry	1	10/7/2011 5:33:00 PM
Surr: 2-Fluorobiphenyl	74.6	45-105	H	%REC	1	10/7/2011 5:33:00 PM
Surr: Nitrobenzene-d5	82.1	35-100	H	%REC	1	10/7/2011 5:33:00 PM
Surr: Terphenyl-d14	107	30-125	H	%REC	1	10/7/2011 5:33:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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Analytical Report

(consolidated)

WO#: **1108481**

Date Reported: **11/18/2011**

CLIENT: Tetra Tech NUS, Inc. **Collection Date:** 8/11/2011 8:25:00 AM

Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU32-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
POLYCHLORINATED BIPHENYLS				**SW8082** **SW3550C** Analyst: **MB**		
Aroclor 1016	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1221	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1232	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1242	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1248	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1254	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Aroclor 1260	ND	37	U	µg/Kg-dry	1	8/19/2011 1:42:23 PM
Total PCBs	ND	37		µg/Kg-dry	1	8/19/2011 1:42:23 PM
Surr: Decachlorobiphenyl	118	60-125		%REC	1	8/19/2011 1:42:23 PM
Surr: Tetrachloro-m-xylene	101	60-125		%REC	1	8/19/2011 1:42:23 PM
TARGET ANALYTE LIST METALS (23) METALS, ICP/MS				**SW6020A** **SW3050B** Analyst: **AV**		
Aluminum	4,800,000	190,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Arsenic	1,100	280		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Barium	11,000	4,700		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Beryllium	360	370	J	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Cadmium	130	190	J	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Calcium	760,000	190,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Chromium	6,200	1,900		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Cobalt	3,700	930		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Copper	7,800	930		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Iron	8,800,000	750,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Lead	7,100	190		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Magnesium	1,700,000	93,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Manganese	210,000	19,000		µg/Kg-dry	400	9/8/2011 1:53:51 PM
Nickel	6,700	1,900		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Potassium	280,000	93,000		µg/Kg-dry	20	9/8/2011 12:01:01 PM
Selenium	ND	930	U	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Sodium	37,000	93,000	J	µg/Kg-dry	20	9/8/2011 12:01:01 PM
Thallium	ND	370	U	µg/Kg-dry	20	9/8/2011 10:25:13 AM
Vanadium	12,000	750		µg/Kg-dry	20	9/8/2011 10:25:13 AM
Zinc	30,000	9,300		µg/Kg-dry	20	9/8/2011 10:25:13 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
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Project: Industrial Operations Area-CTO WE11/112G02073

Lab ID: 1108481-003 **Matrix:** SOIL

Client Sample ID IOA-SS-EU32-0002

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TARGET ANALYTE LIST METALS (23) SILVER AND ANTIMONY, ICP/MS				**SW6020A**	**SW3050B**	Analyst: **at**
Antimony	88	240	J	µg/Kg-dry	10	9/8/2011 6:31:35 PM
Silver	ND	140	U	µg/Kg-dry	10	9/8/2011 6:31:35 PM
TARGET ANALYTE LIST METALS (23) MERCURY				**SW7471A**		Analyst: **AB2**
Mercury	ND	32	U	µg/Kg-dry	1	8/24/2011 2:36:06 PM
POLYNUCLEAR AROMATIC HYDROCARBONS SEMI-VOLATILE ORGANIC COMPOUNDS				**SW8270C**	**SW3550C**	Analyst: **MT 3**
2-Methylnaphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Acenaphthene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Acenaphthylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(a)anthracene	20	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(a)pyrene	20	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(b)fluoranthene	48	180	JmH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(g,h,i)perylene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Benzo(k)fluoranthene	20	180	JmH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Chrysene	33	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Dibenzo (a,h) anthracene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Fluoranthene	49	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Fluorene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Naphthalene	ND	180	UH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Phenanthrene	11	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Pyrene	55	180	JH	µg/Kg-dry	1	10/7/2011 5:10:00 PM
Surr: 2-Fluorobiphenyl	77.6	45-105	H	%REC	1	10/7/2011 5:10:00 PM
Surr: Nitrobenzene-d5	86.5	35-100	H	%REC	1	10/7/2011 5:10:00 PM
Surr: Terphenyl-d14	99.0	30-125	H	%REC	1	10/7/2011 5:10:00 PM
PERCENT MOISTURE				**D2216**		Analyst: **NK**
Percent Moisture	11	1.0		wt%	1	8/26/2011 10:15:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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Original

APPENDIX C
REGION I WORKSHEETS

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name South Weymouth
Reference No. _____

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name RTI Laboratories
Case/Project No. _____
SDG No. 1108481
No. of Samples/Matrix SOIL

SOW/Method No. _____
Sampling Date(s) Aug 9, 11 + 15, 2011
Shipping Date(s) _____
Date Rec'd by lab _____

Traffic Report Sample Nos. see validation letter

Equipment Blank No. _____
Bottle Blank No. _____
Field Duplicate Nos. _____
PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision _____ was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc., that received partial Tier III validation.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation and Technical Holding Times
- ICP-MS Tune
- Calibrations
- Blanks
- ICP-AES Interference Check Sample (ICS)
- ICP-MS Interference Check Sample (ICS)
- ICP-MS Internal Standards
- Matrix Spikes
- Laboratory Duplicate Samples
- Field Duplicates
- ICP Serial Dilutions
- Sensitivity Check
- Performance Evaluation Samples/Accuracy Check
- Analyte Quantitation and Reported Quantitation Limits
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with analyte is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Analyte not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
BB, EB - Analyte detected in aqueous bottle blank or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Terri Solomon Company Name Tetra Tech Phone Number _____

Date Validation Started Dec 1, 2011 Date Validation Completed Dec 2, 2011

EPA-NE
Data Validation Worksheet Cover Page - Page 2

Check if all criteria are met and no hard copy worksheet is provided. Indicate NA if worksheet is not applicable to the analytical method. Note: there is no standard worksheet for System Performance; however, the validator must document all system performance issues in the Data Validation Memorandum.

INORG Worksheets:

INORG	COMPLETE SDG FILE (CSF) AUDIT	_____
INORG-I	PRESERVATION AND TECHNICAL HOLDING TIMES	_____
INORG-II	ICP-MS TUNE	_____
INORG-III-A/B	CALIBRATIONS	_____
INORG-IV-A/B	BLANKS	_____
INORG-IV-C.1	BLANKS	_____
INORG-IV-C.2	BLANKS	_____
INORG-V-A	ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB	_____
INORG-V-B.1	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-V-B.2	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-VI-A	ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB	_____
INORG-VI-B	ICP-MS INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-VII	ICP-MS INTERNAL STANDARDS	_____
INORG-VIII	MATRIX SPIKES	_____
INORG-IX	LABORATORY DUPLICATE SAMPLES	_____
INORG-X	FIELD DUPLICATES	_____
INORG-XI	ICP SERIAL DILUTIONS	_____
INORG-XII-A/B	SENSITIVITY CHECK	_____
INORG-XIII-A	PE SAMPLES/ACCURACY CHECK- LCS	_____
INORG-XIII-B	PE SAMPLES/ACCURACY CHECK- PE RESULTS	_____
INORG-XIV	ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS	_____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	_____

I certify that all criteria were met for the worksheets checked above.

Signature: Terri Solomon

Name: Terri Solomon

Date: 12-2-2011

The data validator generates a Data Validation Report, applicable to Data Validation Tiers II and III, that consists of the following components in the order specified below: (Refer to Part I - Data Validation Manual, Section 11 for a description of each of the Data Validation Report components).

1. Organic Regional Data Assessment/Inorganic Regional Data Assessment (ORDA/IRDA) Form
2. Data Validation Memorandum
   a. Narrative
   b. Table I-Qualifier Recommendation Summary Table
   c. Table II-Overall Evaluation of Data
   d. Data Summary Tables
3. Standard Data Validation Worksheets
   a. Manual
   b. Automated Data Review Reports
4. Support Documentation
   a. Copy of non-CLP analytical method, e.g., DAS methods, modified EPA methods
   b. Copies of PES Score Reports/Vendor PES QC Acceptance Limits
   c. Copies of Telephone Logs/Communication Forms for:
      - RSCC communications
      - Requests for laboratory data resubmissions/clarifications
      - Communications with samplers resolving sampling problems
      - Communications with PO/DV Chemist/Lead Chemist to report contractually-deficient data for rejection/reduced payment
      - Communications with EPA Site Manager concerning possible data rejection
      - EPA Site Manager authorization for alternate DV tier
   d. Copies of data supporting recommendations for reduced payment resulting from CSF Audit and/or PE sample result evaluation
   e. Original data to support recommendations for data rejection/non-payment identified from Tier II or Tier III data validation
   f. Copies of field sampling notes and/or field report supplied by field sampler
   g. Copies of EPA-approved amendments to QAPP and/or SAP describing modified criteria to be used for validating site data
5. CSF Completeness Evidence Audit
6. DQO Summary Form

The data validator is responsible for implementing all corrective actions required by the contractor Lead Chemist in response to EPA-NE data validation oversight findings.

see val. data letter

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

Site:_____ Case:_____ SDG:_____

INORGANICS					
DQO (List all DQOs)	Sampling and/or Analytical Method Appropriate? (Yes or No)	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		

* The evaluation of "sampling error" cannot be completely assessed in data validation.

** Sampling variability is not assessed in data validation.

Validator: Hans Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG

see validation letter

COMPLETE SDG FILE (CSF) AUDIT

Inorganic Parameters:_____

Missing Information	Date Lab Contacted	Date Received

Validator Kim Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-I

See validation letter

I. PRESERVATION AND HOLDING TIMES

Circle sample numbers with exceeded technical holding times or omitted preservation.
Circle all exceeded technical holding times.

Sample No.	Matrix	Pres. Code		Date Sampled	Metals		Hg		CN		Action
		Metals	CN		Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	

Preservation Code:
1. Cool (≤ 6°C)
2. pH < 2 with HNO_3
3. pH > 12 with NaOH
4. Room Temperature
5. Freeze
6. Reducing agent (for oxidants)
7. Treated for sulfides
8. Other - _____

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Sampler:_____ Company:_____ Contacted: Y N Date:_____

Validator: John Solomon Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-II

II. ICP-MS TUNE

see validation letter

List all Tunes that are outside method QC acceptance criteria.

Method:_____

Method QC acceptance criteria for mass calibration:_____

Method QC acceptance criteria for resolution check/peak width:_____ at_____% peak height.

Method QC acceptance criteria for % RSD:_____

Analysis Date and Time	Analyte	Mass Calibration			Mass Resolution		% RSD of Absolute Signals	Analyte/Samples Affected	Action
		True Mass (amu)	Measured Mass (amu)	Absolute Difference of Masses (amu)	Peak Width (amu)	% Peak Height			
Comments:									

Validator: Helen Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-III-A/B/C

see validation letter

III. CALIBRATIONS

A. Instrument Calibration - List all calibration correlation coefficients that are outside the method QC acceptance criteria.
Calibration correlation QC acceptance criteria: _____ Calibration Type: _____

Date/Time	Instr.	Analyte	Corr. Coef.	Samples Affected	Action

B. Initial and Continuing Calibration Verifications - List all ICV and CCV analyte recoveries that are outside the method QC acceptance criteria.
ICV method QC acceptance criteria: _____ CCV method QC acceptance criteria: _____

Date	Instr.	Analyte	ICV/CCV #	% R	Samples Affected	Action

C. Quantitation Limit Check Standard - List all QL Check Standard analytes that are outside method QC acceptance criteria.
QL Check Standard method QC acceptance criteria: _____

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action

Comments: _____

Validator: Andrew Solomon Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-A/B

see validation letter

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: _____ Company: _____ Contacted: Y N Date: _____

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency? Y N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria? Y N

Comments: _____

Validator: Helen Solomon Date: 12-2-2011

EPA-NE - Data Validation Worksheet
INORG-IV-C.1
IV. BLANKS

see validation letter

C.1 Blank Contamination Worksheet

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Calcium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury															
Nickel															
Potassium															
Selenium															
Silver															
Sodium															
Thallium															
Vanadium															
Zinc															
Cyanide															

Validator: Helen Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IV-C.2

see validation letter

IV. BLANKS

C.2 Blank Actions - List the maximum concentrations of each analyte among all blanks associated with each sample.

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units)	Blank Action Level (units)	Sample QL	Samples Affected	Action
Comments:							

Validator: Matthew Solomon

Date: 12-2-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-A

N/A

V. A. ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB

1. List all analytes in the ICSAB that are outside ICSAB percent recovery criteria.

Date	Analyte	%R	Conc. of Interferents Observed in ICSAB (ug/L)				Samples Affected	Action
			Al	Ca	Fe	Mg		
Comments:								

Validator John Salomon

Date: 12-2-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-V-B.1

N/A

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	
Comments:										

Validator Karen Solomon

Date: 12-2-2011

EPA NE - Data Validation Worksheet
INORG-V-B.2

N/A

V. B.2 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

2. List all affected sample results.

Affected Sample	Interferent	Conc. in Sample (ug/L)	Analyte	Conc. in Sample (ug/L)	Estimated Interference in Sample (ug/L)	Action
Comments:						

Validator: Helen Solomon

Date: 12-2-2011

EPA NE - Data Validation Worksheet
INORG-VI-A

see validation letter

VI. A. ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB

List all analytes that are outside ICSAB criteria of 80-120% R.

Date	Analyte	%R	Samples Affected	Action
Comments:				

Validator: Kim Solomon

Date: 12-2-2011

DRAFT 11/08

EPA NE - Data Validation Worksheet
INORG-VI-B

See Validation letter

VI. B. ICP-MS INTERFERENCE CHECK SAMPLE - ICSA

List all analytes that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV ± 2xMDL	Samples Affected	Action
Comments:							

Validator: Nora Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-VII

see validation letter

VII. ICP-MS INTERNAL STANDARDS

List all internal standards that are outside method QC acceptance criteria.

IS method QC acceptance criteria: _____

Sample Number	Date and Time Analyzed	IS, amu	% RI	Analytes Affected (amu)	Action
Comments:					

Validator: Kim Solomon

Date: 12-2-2011

EPA-NE - Data Validation Worksheet
INORG-VIII

VIII. MATRIX SPIKES - List all matrix spike analytes that are outside method QC acceptance criteria.

See validation letter

Use a separate worksheet for each matrix spike sample.

Sample No.: _____ Matrix: _____

Method	Analyte	Spiked Sample Result	Sample Result	Amount of Spike Added	MS % Recovery	Method QC Limits % Recovery	Post-Digest Spike % Recovery	Action

Comments:

Validator: [signature] Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-IX

N/A

IX. LABORATORY DUPLICATE SAMPLES - List all analytes that are outside method QC acceptance criteria for the specific matrix.

Use a separate worksheet for each laboratory duplicate sample.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Laboratory duplicate sample method QC acceptance criteria:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the field duplicate sample data indicate acceptable field precision? Y N

Comments:_____

Validator: [signature] Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-X

See Validation letter

X. FIELD DUPLICATES - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample No.:_____ Duplicate Sample No.:_____ Matrix:_____

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the laboratory duplicate sample data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for contact and resolution obtained: _____

Validator: Lisa Solomon Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-XI

See validation letter

XI. ICP SERIAL DILUTIONS

Use a separate worksheet for each serial dilution sample.

Sample No.:_____ Matrix:_____ Method:_____

List all serial dilution analytes that are outside method QC acceptance criteria.

% Difference method QC acceptance criteria: _____
Minimum concentration required to apply the % D criteria (e.g., 50x MDL): _____

Analyte	MDL	Min. Conc. Required	Sample Result	Serial Dilution Sample Result (corrected for dilution)	% D	Action

Comments:

Validator: Kevin Solomon

Date: 12-2-2011

DRAFT 11/08

EPA-NE - Data Validation Worksheet
INORG-XII-A/B

see validation letter

XII. SENSITIVITY CHECK

A. Method Detection Limit Study - List all analytes that are outside the MDL criteria.

- Has an appropriate MDL study been submitted with seven replicates for each analyte and matrix of interest? **Y N**
- Were samples analyzed within one year of the MDL study and on the same instrument? **Y N**

Matrix	Analyte	MDL	MDL > QL	Samples Affected	Action

If an MDL study has not been submitted, use only the LFB results to evaluate data.

B. Laboratory Fortified Blank - List all LFB analytes that are outside the LFB criteria.

- Has an appropriate and complete LFB been submitted at the proper frequency? **Y N**
- Does the LFB contain all target analytes at their QLs? **Y N**

Matrix	Method	Analyte	% R	Method QC Limits % R	Samples Affected	Action

Comments: _____

Validator: Hans Solomon Date: 12-2-2011

EPA-NE - Data Validation Worksheet
INORG-XIII-A

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

See validation letter

A. Laboratory Control Samples - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Are more than one-half of the LCS analytes within criteria for each parameter and method? **Y** **N**

Date Prepared	Date Analyzed	Parameter/ Method	Matrix	Analyte	% Recovery (or Observed Conc.)	Method QC Acceptance Criteria	Samples Affected	Action

Comments:

Validator: Kevin Solomon

Date: 12-2-2011

EPA-NE - Data Validation Worksheet
INORG-XIII-B

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

N/A

B. Performance Evaluation Results - List all analytes that are outside criteria.

SDG No.:_____ Case:_____

Indicate the source of the PES: Region 1 EPA PES Non-EPA PES

Are more than one-half of the PES analytes within criteria for each parameter and method? **Y** **N**

PE Sample Number	Ampule Number	Parameter/ Method	Type of PES	Matrix	Analyte	Conc.	PES Score*	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High, Action Low, Analyte Missed, Contaminant.
For Non-EPA PESs indicate the Non-EPA PES Score: PES Analyte Missed; PES Analyte Contaminant; PES Analyte Hit (% Recovery Limits).

Comments:_____

Validator: Lou Soleman

Date: 12-2-2011

EPA-NE - Data Validation Worksheet
INORG-XIV

N/A

XIV. ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per analytical method. (Note: Although Section XIV, C.2.a, requires that one calculation for each method in each sample be performed, the validator is only required to reproduce an example, for each method, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y** **N**

- If no, were any steps employed to address the high moisture content? _____
- Indicate the action and list the affected sample nos.: _____

Method		Calculation
ICP-AES		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
ICP-MS		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
Mercury		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		
Cyanide		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		

Validator: John Soloman

Date: 12-2-2011

APPENDIX D
SUPPORT DOCUMENTATION

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 8/12/2011. Samples were received on wet ice and sample temperatures are recorded on the chain of custody and sample receiving documents. Sample preservation is checked on receipt and noted on the chain of custody. Adjustments required for sample preservation are recorded for the affected samples. The sample set consisted of 18 soil samples and 1 solvent sample.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Volatile Organic Compounds – EPA Methods 5035/8260B
Semi-Volatile Organic Compounds (PNAs) – EPA Methods 3550C/8270D
Polychlorinated Biphenyls (PCBs) – EPA Methods 3550C/8082
Metals/Mercury – EPA Methods 3050B/6020A/7471A
Percent Moisture – ASTM D2216

Sample 1108481-002 (IOA SS-EU20-0002) was broken in transit

Sample extracts for PAH analyses were analyzed beyond the holding time.

Sample 1108481-018 required re-analysis due to low internal standard responses. Analysis was performed <1 day beyond the holding time,

QUALITY CONTROL:

Volatile Organic Compounds Analyses:

All sample analyses included a Method Blank, LCS and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC forms or below. Initial and continuing calibration results were within method specifications. MS tuning parameters were within the acceptable ranges for the method.

Continuing calibration verification standard (CCV), 082911: Results for 4-Methyl-2-pentanone and Acetone exceeded the 20% criteria.

Analytical Comments for METHOD SW_8260S, SAMPLE 1108481-016C, Batch ID R42436: Internal Standard/Surrogate failures likely due to cracked cap in sample. Likely occurred when instrument pressurized vial. Could not reanalyze due to previous analysis of other vials provided.

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

CASE NARRATIVE

Surrogate recoveries were within control limits except as noted below:

Sample ID	Dibromofluoromethane	Toluene-d8
1108481-016	83.3%	73.7%
LCS 081911A	83.8%	
BLK 081911A	82.0%	

Analytical Sequence ID 42436:

- Method blank: VOA8 BLK 081911A – Results for the following compounds were greater than ½ the LOQ.
  1,2,3-Trichlorobenzene: Result – 0.51, ½ LOQ – 0.5
  Acetone: Result – 5.8, ½ LOQ – 2.5
  Toluene: Result – 0.79, ½ LOQ – 0.5
- Sample IDs 1108481-016CMS/MSD recoveries exceeded control limits for several analytes. Could not reanalyze due to previous analysis of other vials provided. No sample left for reanalysis.

Analytical Sequence ID 42719:

- LCS 082911 recovery exceeded control limits for Methylene chloride (39.6%),

All manual integrations were performed to adequately resolve co-eluting compounds, interference and instrument data system inconsistencies and were consistent with laboratory policies and procedures for manual integration. Before and after screen shots of the integrations are enclosed in this data package. Rationale for manual integration is included and follows the raw data.

Semi-Volatile Organic Compounds (PNAs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications. MS tuning parameters were within the acceptable ranges for the method.

Surrogate recoveries were within control limits.

All manual integrations were performed to adequately resolve co-eluting compounds, interference and instrument data system inconsistencies and were consistent with laboratory policies and procedures for manual integration. Before and after screen shots of the integrations are enclosed in this data package. Rationale for manual integration is included and follows the raw data.

RTI Laboratories, Inc. **Date:** *18-Nov.-11*

CLIENT: Tetra Tech NUS, Inc.
Project: 112G02073
Location: Industrial Operations Area, NAS South Weymouth, Weymouth, MA
Contract/CTO: N62470-08-D-1001/WE11
Project Manager: Ms. Phoebe Call
Workorder: 1108481

CASE NARRATIVE

Polychlorinated Biphenyls (PCBs) Analyses:

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications

Surrogate recoveries were within established control limits except as noted below:

Sample ID	Decachlorobiphenyl	Tetrachloro-m-xylene
1108481-007	136%	
1108481-012	158%	142%

Metals Analyses:

Quality control samples for metals included duplicates, LCS, MS/MSD, post digestion spikes (where applicable) and serial dilutions (where applicable). All calibration standards, continuing calibration check standards and other QC parameters were within established control limits except if noted.

Batch ID 23333:

- Sample ID 1108481-016BMS/MSD recoveries and RPD results for Aluminum, Calcium, Iron, Manganese, Magnesium and Potassium were affected by elevated concentrations in the sample.

Wet Chemistry Analyses:

All sample analyses included the method specified quality control samples.

No other problems were noted during the analytical events associated with this project.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature. In addition, I verify that all electronic diskette deliverables exactly match the data summary forms.

Signed: Charles O'Bryan
Charles O'Bryan, Director, Quality Management

Date: 11/18/2011

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 2

RTI LABORATORIES, INC.

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | 8(a) / SDB

MAIN LAB
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

1108482

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS

PROJECT NAME: Industrial Operations Area CTO WE11 | PROJECT #: 112602073 CTOWE11 | QUOTE #:

SAMPLING LOCATION (STATE or COUNTRY): MA

SPECIAL INSTRUCTIONS / COMMENTS:

REPORT TO: Phoebe Call

COMPANY: TetraTech

ADDRESS: 250 Andover St Suite 200

CITY, STATE, ZIP: Wilmington, MA 01887

PHONE: 918-474-8400

EMAIL (OR FAX IF NO EMAIL AVAILABLE): PhoebeCall@tetratech.com

BILL TO: | P.O. #

COMPANY: Lab spec

ADDRESS:

CITY, STATE, ZIP

SAMPLER'S PRINTED NAME: Johanna Traut

SAMPLER'S SIGNATURE: Johanna Traut

ANALYTICAL PARAMETERS

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	PAHs	PCBs	Metals						pH Acceptable? Y N N/A	COMMENTS Methanol Preserved Weights HOT Sample Notation Additional Sample Description, Air Volume, etc.
1	IOA-SS-EU21-0002	8/11/11	0810	S	~~3~~ 0	~~3~~ 0	JT	8/11/11					–	1	–						N/A	
2	IOA-SS-EU20-0002	8/11/11	0820	S	1	1							–	1	–						N/A	broken in transit 8/12/11
3	IOA-SS-EU32-0002	8/11/11	0825	S	3	3							1	1	1						N/A	
4	IOA-SS-EU19-0002	8/11/11	0845	S	3	3							1	1	1						N/A	
5	IOA-SS-DUP04-081111	8/11/11	0000	S	3	3							1	1	1						N/A	
6	IOA-SS-EU22-0002	8/11/11	0855	S	1	1							–	1	–						N/A	
7	IOA-SS-EU12-0002	8/11/11	0905	S	3	3							1	1	1						N/A	
8	IOA-SO-RIA82-01A-0608	8/9/11	1525	S	2	2							1	–	1						N/A	
9	IOA-SO-RIA82-02A-0608	8/11/11	0935	S	2	2							1	–	1						N/A	
10	IOA-SO-RIA82-03A-0608	8/11/11	0955	S	2	2							1	–	1						N/A	

Relinquished By:	Date	Time	Received By:	Date	Time
Johanna Traut	8/11/11	1500	FedEx		
FedEx	8/12/11	1000	Christine Conradis	8/12/11	1000

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples 2.4-7.8 On Wet Ice ? Y

Comments: Cooler A-511 Temp Blank 1.4°C Fedex: 8651 7613 3983

TURNAROUND DESIRED: Standard ☒ RUSH: Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

Distribution: White - Lab; Pink - Field

See reverse side for Laboratory Terms and Conditions of Service

MATRIX CODES: A = AIR, SD = SOLID, DW = DRINKING WATER, SL = SLUDGE, GW = GROUNDWATER, SV = SOLVENT WASTE, L = LIQUID, W = WATER, O = OIL, WP = WIPE, WW = WASTE WATER, SW = SURFACE WATER, S = SOIL

CHAIN OF CUSTODY RECORD

RTI LABORATORIES, INC.
RTI LABORATORIES, INC.
31628 Glendale Street
Livonia, MI 48150-1827
Phone (734) 422-8000
Fax (734) 422-5342
www.rtilab.com

A2LA Cert #570.01/02 | NELAC Cert #000973 | MBE Cert #R-8150-2-424 | SBA 8(a) / SDB

1108482

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS	REPORT TO: Phoebe Call
PROJECT NAME: Industrial operations Area NAS Weymouth	PROJECT #: 112602073 CTOWELL
QUOTE #	COMPANY: TetraTech
SAMPLING LOCATION (STATE or COUNTRY): MA	ADDRESS: 250 Andover St Suite 200
SPECIAL INSTRUCTIONS / COMMENTS:	CITY, STATE, ZIP: Wilmington, MA 01887
SAMPLER'S PRINTED NAME: Johanna Traut (774) 722-0409	PHONE: 978-474-8400
SAMPLER'S SIGNATURE: Johanna Traut	EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.Call@tetratech.com
BILL TO:	P.O. #
COMPANY: Ace lab spec	
ADDRESS:	
CITY, STATE, ZIP	

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: PAHs	Metals	pH Acceptable? Y N N/A	COMMENTS: Methanol Preserved Weights, HOT Sample Notation, Additional Sample Description, Air Volume, etc.
1	IOA-SO-RIA82-04A-0608	8/11/11	1035	S	2	2							1	1	NA	
2																
3																
4																
5																
6																
7																
8																
9																
10																

AT 8-11-11

Relinquished By	Date	Time	Received By	Date	Time
Johanna Traut	8-11-11	1500	FedEx		
Fed ex	8/15/11				

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE
ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY
Temp of samples 24-7.8°C On Wet Ice ? Y
Comments:

TURNAROUND DESIRED: Standard (X) **RUSH:** Next BD ☐ 2nd BD ☐ 3rd BD ☐
Note: RUSH requests will incur surcharges!

See reverse side for Laboratory Terms and Conditions of Service

Distribution: White - Lab; Pink - Field

MATRIX CODES: A = AIR; SD = SOLID; DW = DRINKING WATER; SL = SLUDGE; GW = GROUNDWATER; SV = SOLVENT WASTE; L = LIQUID; W = WATER; O = OIL; WP = WIPE; WW = WASTE WATER; SW = SURFACE WATER; S = SOIL

RTI LABORATORIES, INC.

A2LA Cert #570.01/02

NELAC Cert #000973

MBE Cert #R-8150-2-424

8(a) / SDB

Phone (734) 422-...
Fax (734) 422-5342
www.rtilab.com

1108481

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: TetraTech, NUS

PROJECT NAME: Industrial Operating Area

PROJECT #: 112602073 | CTDAVE11

QUOTE #:

SAMPLING LOCATION (STATE or COUNTRY): MA

SPECIAL INSTRUCTIONS / COMMENTS:

REPORT TO: Phoebe Call

COMPANY: TetraTech

ADDRESS: 250 Andover St, Suite 200

CITY, STATE, ZIP: Wilmington, MA 01887

PHONE: 978-474-8400

BILL TO: P.O.#

COMPANY: see lab Spec

ADDRESS:

CITY, STATE, ZIP

EMAIL (OR FAX IF NO EMAIL AVAILABLE): Phoebe.Call@Tetratech.com

SAMPLER'S PRINTED NAME: Johanna Traut

SAMPLER'S SIGNATURE: Johanna Traut

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED		MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES: NONE	HCL	HNO3	H2SO4	NaOH	Methanol	OTHER	ANALYTICAL PARAMETERS: VOCs	PAHs	PCBs	Metals						pH Acceptable? Y N N/A	COMMENTS
													1	1	1	1							Methanol Preserved Weights; HOT Sample Notation; Additional Sample Description; Air Volume, etc.
12	IDA-SS-EU20-0002	8/15/11	1525	S	1	1						2	2	1	-	(1)						N/A	
13	IDA-SO-KIA33-SB04-0305	8/15/11	1310	S	4	2						2	2	1	-	(1)						N/A	
14	IDA-SO-KIA33-SB08-0305	8/15/11	1320	S	4	2						2	2	1	-	(1)						N/A	
15	IDA-SO-DUP05-081511	8/16/11	0000	S	4	2						6	6	3	-	(3)						N/A	Lab QC
16	IDA-SO-KIA33-SB10-0305	8/15/11	1340	S	11	5						2	2	1	-	(1)						N/A	
17	IDA-SO-KIA33-SB14-0507	8/15/11	1400	S	4	2						2	2	1	-	(1)						N/A	
18	IDA-SO-KIA33-SB02-0507	8/15/11	1425	S	4	2						2	2	-	-	-						N/A	
19	IDA-SO-TB01-081511	8/15/11	0800	QC	2																		
9																							
10																							

Relinquished By: Johanna Traut — Date: 8/15/11 — Time: 1700 — Received By: to Fedex

Relinquished By: Fedex — Date: 8/16/11 — Time: 09:45 — Received By: Christina Consadis — Date: 8/16/11 — Time: 09:45

Relinquished By: — Date — Time — Received By: — Date — Time

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

FOR LAB USE ONLY

Temp of samples: 10.4 - 19.2 — On Wet Ice ? Y

Comments: Cadena Analytics Lab

TURNAROUND DESIRED: Standard (X)

RUSH: Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

See reverse side for Laboratory Terms and Conditions of Service

Distribution: White - Lab, Pink - Field

MATRIX CODES: A = AIR; SD = SOLID; DW = DRINKING WATER; SL = SLUDGE; GW = GROUNDWATER; SV = SOLVENT WASTE; L = LIQUID; W = WATER; O = OIL; WP = WIPE; WW = WASTE WATER; SW = SURFACE WATER; S = SOIL

Temp Blank: 1.4°C

HOLDTIME

PROJ_NO 02073

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	HG	UG/KG	IOA-SO-RIA33-SB10-0305	1108481-016B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SO-RIA82-04A-0608	1108481-011B	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SO-RIA82-02A-0608	1108481-009B	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SO-RIA82-01A-0608	1108481-008B	NM	08/09/2011	08/24/2011	08/24/2011	15	0	15
1108481	HG	UG/KG	IOA-SS-DUP04-081111	1108481-005C	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SO-RIA33-SB14-0507	1108481-017B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SO-RIA82-03A-0608	1108481-010B	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SS-EU12-0002	1108481-007C	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SO-RIA33-SB02-0507	1108481-018B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SO-RIA33-SB08-0305	1108481-014B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SS-EU19-0002	1108481-004C	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	HG	UG/KG	IOA-SO-RIA33-SB04-0305	1108481-013B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SO-DUP05-081511	1108481-015B	NM	08/15/2011	08/24/2011	08/24/2011	9	0	9
1108481	HG	UG/KG	IOA-SS-EU32-0002	1108481-003C	NM	08/11/2011	08/24/2011	08/24/2011	13	0	13
1108481	M	UG/KG	IOA-SO-RIA33-SB04-0305	1108481-013B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24
1108481	M	UG/KG	IOA-SO-RIA33-SB10-0305	1108481-016B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	M	UG/KG	IOA-SS-EU32-0002	1108481-003C	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SO-RIA33-SB14-0507	1108481-017B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24
1108481	M	UG/KG	IOA-SO-RIA33-SB02-0507	1108481-018B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24
1108481	M	UG/KG	IOA-SO-DUP05-081511	1108481-015B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24
1108481	M	UG/KG	IOA-SO-RIA82-01A-0608	1108481-008B	NM	08/09/2011	08/23/2011	09/08/2011	14	16	30
1108481	M	UG/KG	IOA-SO-RIA82-02A-0608	1108481-009B	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SO-RIA33-SB08-0305	1108481-014B	NM	08/15/2011	08/23/2011	09/08/2011	8	16	24
1108481	M	UG/KG	IOA-SS-DUP04-081111	1108481-005C	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SO-RIA82-04A-0608	1108481-011B	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SS-EU12-0002	1108481-007C	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SO-RIA82-03A-0608	1108481-010B	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	M	UG/KG	IOA-SS-EU19-0002	1108481-004C	NM	08/11/2011	08/23/2011	09/08/2011	12	16	28
1108481	PMOIS	%	IOA-SO-RIA33-SB02-0507	1108481-018B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-EU22-0002	1108481-006A	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SS-EU32-0002	1108481-003C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SS-EU22-0002	1108481-012A	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SO-RIA33-SB08-0305	1108481-014B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-EU21-0002	1108481-001A	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SS-EU12-0002	1108481-007C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15

SDG	SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
1108481	PMOIS	%	IOA-SO-RIA33-SB04-0305	1108481-013B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-DUP04-081111	1108481-005C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA33-SB10-0305	1108481-016B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SO-RIA82-04A-0608	1108481-011B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-03A-0608	1108481-010B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-02A-0608	1108481-009B	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-RIA82-01A-0608	1108481-008B	NM	08/09/2011	01/01/1999	08/26/2011	-4603	4620	17
1108481	PMOIS	%	IOA-SO-RIA33-SB14-0507	1108481-017B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	PMOIS	%	IOA-SS-EU19-0002	1108481-004C	NM	08/11/2011	01/01/1999	08/26/2011	-4605	4620	15
1108481	PMOIS	%	IOA-SO-DUP05-081511	1108481-015B	NM	08/15/2011	01/01/1999	08/26/2011	-4609	4620	11
1108481	OV	%	IOA-SO-RIA33-SB14-0507	1108481-017C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-TB01-081511	1108481-019A	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB02-0507	1108481-018C	NM	08/15/2011	01/01/1999	08/29/2011	-4609	4623	14
1108481	OV	%	IOA-SO-RIA33-SB08-0305	1108481-014C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB04-0305	1108481-013C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-RIA33-SB10-0305	1108481-016C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	%	IOA-SO-DUP05-081511	1108481-015C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-RIA33-SB10-0305	1108481-016C	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4
1108481	OV	UG/KG	IOA-SO-TB01-081511	1108481-019A	NM	08/15/2011	01/01/1999	08/19/2011	-4609	4613	4

NAS SOUTH WEYMOUTH
SOIL DATA
1108481

FRACTION	CHEMICAL	IOA-SO-RIA33-SB14-0507	UNITS	IOA-SO-DUP05-081511	RPD	D
M	ALUMINUM	7900000	UG/KG	7000000	12.08	900000.00
M	ANTIMONY	530	UG/KG	450	16.33	80.00
M	ARSENIC	1500	UG/KG	1500	0.00	0.00
M	BARIUM	15000	UG/KG	14000	6.90	1000.00
M	BERYLLIUM	380	UG/KG	420	10.00	40.00
M	CADMIUM	180 J	UG/KG	200	10.53	20.00
M	CALCIUM	1100000	UG/KG	1100000	0.00	0.00
M	CHROMIUM	9200	UG/KG	7300	23.03	1900.00
M	COBALT	6800	UG/KG	6600	2.99	200.00
M	COPPER	9000	UG/KG	8300	8.09	700.00
M	IRON	14000000	UG/KG	14000000	0.00	0.00
M	LEAD	8100	UG/KG	7500	7.69	600.00
M	MAGNESIUM	2400000	UG/KG	2200000	8.70	200000.00
M	MANGANESE	320000	UG/KG	320000	0.00	0.00
M	MERCURY	7.7 J	UG/KG	8.5 J	9.88	0.80
M	NICKEL	8900	UG/KG	7100	22.50	1800.00
M	POTASSIUM	360000	UG/KG	400000	10.53	40000.00
M	SELENIUM	ND	UG/KG	370 J	200.00	370.00
M	SODIUM	46000 J	UG/KG	47000 J	2.15	1000.00
M	VANADIUM	15000	UG/KG	14000	6.90	1000.00
M	ZINC	33000	UG/KG	36000	8.70	3000.00
MISC	PERCENT MOISTURE	4	%	4	0.00	0.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

NAS SOUTH WEYMOUTH
SOIL DATA
1108481

FRACTION	CHEMICAL	IOA-SS-EU32-0002	UNITS	IOA-SS-DUP04-081111	RPD	D
M	ALUMINUM	4800000	UG/KG	4500000	6.45	300000.00
M	ANTIMONY	88 J	UG/KG	72 J	20.00	16.00
M	ARSENIC	1100	UG/KG	1200	8.70	100.00
M	BARIUM	11000	UG/KG	14000	24.00	3000.00
M	BERYLLIUM	360 J	UG/KG	320 J	11.76	40.00
M	CADMIUM	130 J	UG/KG	150 J	14.29	20.00
M	CALCIUM	760000	UG/KG	710000	6.80	50000.00
M	CHROMIUM	6200	UG/KG	5200	17.54	1000.00
M	COBALT	3700	UG/KG	3600	2.74	100.00
M	COPPER	7800	UG/KG	7400	5.26	400.00
M	IRON	8800000	UG/KG	8100000	8.28	700000.00
M	LEAD	7100	UG/KG	6500	8.82	600.00
M	MAGNESIUM	1700000	UG/KG	1600000	6.06	100000.00
M	MANGANESE	210000	UG/KG	230000	9.09	20000.00
M	MERCURY	ND	UG/KG	2 J	200.00	OK 2.00
M	NICKEL	6700	UG/KG	5500	19.67	1200.00
M	POTASSIUM	280000	UG/KG	250000	11.32	30000.00
M	SODIUM	37000 J	UG/KG	34000 J	8.45	3000.00
M	VANADIUM	12000	UG/KG	11000	8.70	1000.00
M	ZINC	30000	UG/KG	29000	3.39	1000.00
MISC	PERCENT MOISTURE	11	%	13	16.67	2.00

Current RPD Quality Control Limit: 50 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

JCY 9/8/2011 Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum	50	51	101	50	47	95	0	0	MS
Arsenic	50	49	99	50	48	95	47	93	MS
Barium	50	50	100	50	48	96	48	95	MS
Beryllium	50	49	99	50	47	94	47	93	MS
Cadmium	50	50	100	50	46	92	46	92	MS
Calcium	5000	5100	101	4000	4000	99	0	0	MS
Chromium	50	51	101	50	50	101	51	101	MS
Cobalt	50	50	100	50	50	100	51	101	MS
Copper	50	50	100	50	51	102	51	103	MS
Iron	5000	5100	101	4000	4100	102	0	0	MS
Lead	50	50	99	50	50	100	51	102	MS
Magnesium	5000	5200	103	4000	3800	96	0	0	MS
Manganese	50	49	99	50	50	100	0	0	MS
Nickel	50	50	100	50	50	101	51	102	MS
Potassium	5000	5100	101	4000	3900	98	0	0	MS
Selenium	50	52	103	50	49	97	49	98	MS
Sodium	5000	5200	103	4000	3800	94	0	0	MS
Thallium	50	49	99	50	50	99	50	100	MS
Vanadium	50	50	100	50	49	98	49	98	MS
Zinc	50	51	101	50	49	98	48	96	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data for % rec.

FORM II (Part 1) - IN ILM04.1

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Aluminum				50	0	0	0	0	MS
Arsenic				50	47	95	47	94	MS
Barium				50	48	96	47	94	MS
Beryllium				50	48	96	47	95	MS
Cadmium				50	46	93	45	91	MS
Calcium				4000	0	0	0	0	MS
Chromium				50	51	103	51	102	MS
Cobalt				50	52	104	51	102	MS
Copper				50	53	105	52	104	MS
Iron				4000	0	0	0	0	MS
Lead				50	51	103	50	99	MS
Magnesium				4000	0	0	0	0	MS
Manganese				50	0	0	0	0	MS
Nickel				50	52	105	51	103	MS
Potassium				4000	0	0	0	0	MS
Selenium				50	48	97	47	95	MS
Sodium				4000	0	0	0	0	MS
Thallium				50	51	102	49	98	MS
Vanadium				50	50	100	50	100	MS
Zinc				50	49	98	48	97	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R	True	Found	%R	Found	%R	M
Aluminum				50	0	0	0	0	MS
Antimony	50	0	0	50	0	0	0	0	MS
Arsenic				50	0	0	0	0	MS
Barium				50	0	0	0	0	MS
Beryllium				50	0	0	0	0	MS
Cadmium				50	0	0	0	0	MS
Calcium				4000	4100	103	4100	103	MS
Chromium				50	0	0	0	0	MS
Cobalt				50	0	0	0	0	MS
Copper				50	0	0	0	0	MS
Iron				4000	0	0	0	0	MS
Lead				50	0	0	0	0	MS
Magnesium				4000	3700	93	3700	93	MS
Manganese				50	0	0	0	0	MS
Nickel				50	0	0	0	0	MS
Potassium				4000	4000	100	4000	100	MS
Selenium				50	0	0	0	0	MS
Silver	50	0	0	50	0	0	0	0	MS
Sodium				4000	3600	91	3600	90	MS
Thallium				50	0	0	0	0	MS
Vanadium				50	0	0	0	0	MS
Zinc				50	0	0	0	0	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R	True	Found	%R	Found	%R	M
Antimony				50	0	0	0	0	MS
Calcium				4000	4200	104	4200	105	MS
Magnesium				4000	3800	95	3800	94	MS
Potassium				4000	4000	101	4000	100	MS
Silver				50	0	0	0	0	MS
Sodium				4000	3700	92	3600	91	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

slp raw data

Method 200.8 - Summary Report

Sample ID: CCV-01
Sample Date/Time: Thursday, September 08, 2011 09:30:55
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+b,be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-01.016

Summary

Concentration Results

Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
> Li-1	6	21840.875	1.362	21840.875			ug/L
Be	9	10657.578	1.381	0.487	46.582	1.0	ug/L
B	11	95862.243	2.013	4.382	498.185	0.9	ug/L
> Sc	45	222020.738	1.350	222020.738			ug/L
V	51	361125.549	2.258	1.627	48.933	0.9	ug/L
Cr	52	319110.018	1.869	1.413	50.536	0.6	ug/L
Cr	53	41564.834	2.195	0.151	46.002	1.4	ug/L
Co	59	417562.096	1.310	1.880	50.584	0.1	ug/L
Ni	60	94011.000	1.514	0.421	51.182	0.8	ug/L
Cu	63	223809.226	1.525	1.006	51.353	0.2	ug/L
Cu	65	110414.570	1.448	0.496	51.648	0.8	ug/L
Zn	66	67458.764	2.039	0.178	47.851	1.4	ug/L
Zn	67	12221.547	2.860	0.030	46.226	2.5	ug/L
Zn	68	50509.992	2.573	0.133	47.316	2.0	ug/L
> Ge	72	377058.594	0.646	377058.594			ug/L
As	75	80254.733	1.385	0.211	46.729	0.9	ug/L
Se	77	5981.301	2.538	0.015	46.845	2.5	ug/L
Se	82	7445.500	4.223	0.020	49.004	3.6	ug/L
Y	89	537373.781	0.052	-39769.389			ug/L
Cd	111	99472.714	1.561	0.162	45.992	1.1	ug/L
Cd	114	230191.257	2.133	0.376	45.868	1.7	ug/L
> In	115	611252.732	0.626	611252.732			ug/L
Ba	137	132195.637	0.802	0.183	47.525	0.3	ug/L
> Tb	159	721828.888	0.678	721828.888			ug/L
Tl	205	670355.685	1.381	0.928	50.009	0.8	ug/L
Tl	203	278834.972	0.362	0.386	49.806	0.3	ug/L
Pb	208	917570.108	1.449	1.271	50.798	1.1	ug/L

Be 93.2
V 97.9
Cr 96.5
Co 101
Ni 102
Cu 103
Zn 94.3
As 93.4
Se 95.8
Cd 91.9
Ba 95
Tl 100
Pb 102%

Method 200.8 - Summary Report

Sample ID: CCV-02
Sample Date/Time: Thursday, September 08, 2011 10:31:45
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-02.029

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	20924.728	2.115	20924.728			ug/L
	Be	9	10538.104	0.470	0.503	48.092	2.4	ug/L
>	Sc	45	215584.435	1.028	215584.435			ug/L
	V	51	359673.147	2.442	1.669	50.191	1.6	ug/L
	Cr	52	315688.529	3.168	1.440	51.498	2.2	ug/L
	Cr	53	40409.001	3.129	0.151	46.067	2.7	ug/L
	Co	59	416260.243	2.665	1.930	51.927	1.8	ug/L
	Ni	60	93402.922	2.613	0.431	52.373	2.0	ug/L
	Cu	63	222905.206	2.222	1.032	52.673	1.5	ug/L
	Cu	65	110845.867	2.060	0.513	53.400	1.6	ug/L
	Zn	66	68071.990	2.210	0.181	48.763	2.1	ug/L
	Zn	67	11722.888	1.262	0.029	44.652	1.3	ug/L
	Zn	68	51022.153	2.084	0.135	48.272	2.1	ug/L
>	Ge	72	373432.215	0.123	373432.215			ug/L
	As	75	80577.560	1.217	0.214	47.379	1.2	ug/L
	Se	77	5904.585	3.203	0.015	46.688	3.5	ug/L
	Se	82	7270.560	2.739	0.019	48.326	2.7	ug/L
	Y	89	530892.758	1.005	-46250.412			ug/L
	Cd	111	98762.449	2.102	0.163	46.322	2.1	ug/L
	Cd	114	227812.047	1.176	0.378	46.046	0.7	ug/L
>	In	115	602612.281	0.604	602612.281			ug/L
	Ba	137	132846.654	1.164	0.185	48.139	1.0	ug/L
>	Tb	159	716123.721	0.202	716123.721			ug/L
	Tl	205	680214.411	1.502	0.950	51.149	1.3	ug/L
	Tl	203	283049.236	1.124	0.395	50.960	0.9	ug/L
	Pb	208	920810.903	1.471	1.285	51.383	1.3	ug/L

Be 96
V 100
Cr 97.5
Co 104
Ni 105
Cu 106

Zn 94.4
As 94.7
Se 95.0
Cd 92.3
Ba 96.2
Tl 51.0
Pb 103

Sample ID: CCV-02
Report Date/Time: Thursday, September 08, 2011 10:32:44
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Method 200.8 - Summary Report

Sample ID: CCV-03
Sample Date/Time: Thursday, September 08, 2011 10:58:03
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-03.040

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[>	Li-1	6	20511.117	1.718	20511.117			ug/L
[	Be	9	10157.678	4.113	0.495	47.275	3.8	ug/L
[>	Sc	45	213628.463	1.213	213628.463			ug/L
[	V	51	354653.346	1.435	1.661	49.947	0.7	ug/L
[	Cr	52	310280.991	1.497	1.428	51.078	0.3	ug/L
[	Cr	53	39495.629	1.895	0.148	45.291	1.0	ug/L
[	Co	59	406055.798	0.411	1.901	51.127	1.2	ug/L
[	Ni	60	90694.174	0.831	0.422	51.321	1.3	ug/L
[	Cu	63	217825.756	1.425	1.017	51.947	1.0	ug/L
[	Cu	65	108892.999	0.996	0.508	52.943	1.2	ug/L
[	Zn	66	66693.780	1.373	0.180	48.419	0.0	ug/L
[	Zn	67	11775.623	1.665	0.029	45.527	0.5	ug/L
[	Zn	68	49459.579	2.739	0.133	47.412	1.5	ug/L
[>	Ge	72	368462.812	1.396	368462.812			ug/L
[	As	75	79272.816	0.928	0.214	47.242	1.0	ug/L
[	Se	77	5725.136	2.319	0.015	45.842	2.0	ug/L
[	Se	82	7022.305	1.911	0.019	47.306	1.2	ug/L
	Y	89	524204.808	0.446	-52938.361			ug/L
[	Cd	111	97811.725	0.819	0.160	45.471	1.1	ug/L
[	Cd	114	225594.282	0.582	0.371	45.200	1.1	ug/L
[>	In	115	607949.939	0.620	607949.939			ug/L
[	Ba	137	130618.224	1.329	0.182	47.156	1.5	ug/L
[>	Tb	159	718806.209	0.228	718806.209			ug/L
[	Tl	205	652227.692	0.395	0.907	48.862	0.4	ug/L
[	Tl	203	272159.138	0.120	0.379	48.817	0.3	ug/L
[	Pb	208	894708.597	0.861	1.244	49.741	1.1	ug/L

Be 94.5
V 100
Cr 96.4
Co 102
Ni 103
Cu 105
Zn 94.2
As 94.4
Se 93.1
Cd 90.7
Ba 94.3
Tl 97.6
Pb 99.4

Sample ID: CCV-03
Report Date/Time: Thursday, September 08, 2011 10:59:01
Page 1

Method 200.8 - Summary Report

Sample ID: CCV-05
Sample Date/Time: Thursday, September 08, 2011 11:40:11
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-05.053

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
✓	Na	23	9308065.981	2.292	45.556	3615.621	2.2	ug/L
✓	Mg	24	6287457.468	2.078	30.810	3713.586	2.0	ug/L
✓	K	39	22225544.846	1.739	105.515	4004.705	1.6	ug/L
✓	Ca	43	48710.177	1.823	0.236	4115.279	1.4	ug/L
	Ca	44	837542.637	1.589	3.875	4212.815	1.9	ug/L
>	Sc-1	45	204040.587	1.184	204040.587			ug/L

Na 90.4
Mg 92.8
K 100
Ca 104

Sample ID: CCV-05
Report Date/Time: Thursday, September 08, 2011 11:40:24
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Method 200.8 - Summary Report

Sample ID: CCV-06
Sample Date/Time: Thursday, September 08, 2011 12:16:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-06.066

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	9885979.845	1.749	46.278	3672.944	1.2	ug/L
|	Mg	24	6742416.485	0.563	31.603	3809.069	0.5	ug/L
|	K	39	23364461.655	1.037	106.113	4027.397	0.5	ug/L
|	Ca	43	51527.641	1.566	0.238	4164.612	1.3	ug/L
|	Ca	44	875289.823	1.556	3.873	4210.815	1.4	ug/L
⌊>	Sc-1	45	213319.222	0.906	213319.222			ug/L

Na 91.8
Mg 95.2
K 101
Ca 105

Method 200.8 - Summary Report

Sample ID: CCV-07
Sample Date/Time: Thursday, September 08, 2011 12:31:41
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-03.077

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	9784827.625	1.309	45.681	3625.575	0.8	ug/L
|	Mg	24	6704761.455	1.927	31.340	3777.396	1.4	ug/L
|	K	39	23209943.978	2.020	105.095	3988.760	1.8	ug/L
|	Ca	43	51999.640	1.157	0.240	4191.890	1.0	ug/L
|	Ca	44	891656.187	1.617	3.939	4282.478	2.4	ug/L
⌊>	Sc-1	45	213903.592	1.454	213903.592			ug/L

Na 90.6
Mg 94.4
K 99.7
Ca 106

Method 200.8 - Summary Report

Sample ID: CCV-09
Sample Date/Time: Thursday, September 08, 2011 13:19:38
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-09.089

Summary

Concentration Results

Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
Al	27	140907.804	1.576	0.631	48.867	1.9	ug/L
> Sc	45	220069.167	0.296	220069.167			ug/L
Mn	55	459180.537	1.503	2.081	48.410	1.7	ug/L
Fe	54	1812746.849	2.430	8.128	3985.898	2.7	ug/L
Fe	57	766324.065	2.591	3.456	3810.665	2.9	ug/L
> Sc-1	45	220069.167	0.296	220069.167			ug/L

Al 97.7
Fe 97.4
Mn 96.8

Sample ID: CCV-09
Report Date/Time: Thursday, September 08, 2011 13:19:51
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Method 200.8 - Summary Report

Sample ID: CCV-10
Sample Date/Time: Thursday, September 08, 2011 13:59:02
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-10.102

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	143990.269	1.783	0.615	47.619	2.4	ug/L
|>	Sc	45	230725.782	1.756	230725.782			ug/L
⌊	Mn	55	492545.768	0.872	2.130	49.536	1.1	ug/L
⌈	Fe	54	1952623.115	1.377	8.355	4097.260	2.3	ug/L
|	Fe	57	835676.429	1.344	3.595	3964.749	0.4	ug/L
⌊>	Sc-1	45	230725.782	1.756	230725.782			ug/L

Al 95.2

Fe ~~99.0~~ 101

Mn 99.0

Method 200.8 - Summary Report

Sample ID: CCV-11
Sample Date/Time: Thursday, September 08, 2011 14:10:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCV
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-11.113

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	150233.274	1.087	0.644	49.809	1.1	ug/L
|>	Sc	45	230253.571	0.793	230253.571			ug/L
⌊	Mn	55	469422.899	1.974	2.034	47.300	2.4	ug/L
⌈	Fe	54	1879640.702	1.513	8.055	3949.763	1.9	ug/L
|	Fe	57	791573.887	2.495	3.412	3761.913	3.0	ug/L
⌊>	Sc-1	45	230253.571	0.793	230253.571			ug/L

Al 99.6
Mn 94.6
Fe 96.4

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R	True	Found	%R	Found	%R	
Aluminum	50	51	101	50	47	95			MS
Antimony	0.050	0.055	110	50	0	0	0	0	MS
Arsenic	50	49	99	50	48	95			MS
Barium	50	50	100	50	48	96			MS
Beryllium	50	49	99	50	47	94			MS
Cadmium	50	50	100	50	46	92			MS
Calcium	5000	5100	101	4000	4000	99			MS
Chromium	50	51	101	50	50	101			MS
Cobalt	50	50	100	50	50	100			MS
Copper	50	50	100	50	51	102			MS
Iron	5000	5100	101	4000	4100	102			MS
Lead	50	50	99	50	50	100			MS
Magnesium	5000	5200	103	4000	3800	96			MS
Manganese	50	49	99	50	50	100			MS
Nickel	50	50	100	50	50	101			MS
Potassium	5000	5100	101	4000	3900	98			MS
Selenium	50	52	103	50	49	97			MS
Silver	0.050	0.053	107	50	0	0	0	0	MS
Sodium	5000	5200	103	4000	3800	94			MS
Thallium	50	49	99	50	50	99			MS
Vanadium	50	50	100	50	49	98			MS
Zinc	50	51	101	50	49	98			MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

See raw data

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	M
Antimony				0.050	0.049	99	0.049	99	MS
Silver				0.050	0.048	96	0.048	96	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Initial Calibration Verification Source: ICPMS SS CATIONS+Fe

Continuing Calibration Verification Source: ICPMS B SS 1000uG/mL

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R	True	Found	%R	Found	%R	M
Antimony				0.050	0.050	99	0.050	99	MS
Silver				0.050	0.048	97	0.048	97	MS

ICV Control Limits: EPA 200.7 95-105; All Other Methods 90-110

CCV Control Limits: 7000 Series Methods 80-120; All Other Methods 90-110

see raw data

Method 200.8 - Summary Report

Sample ID: CCV-23
Sample Date/Time: Thursday, September 08, 2011 18:15:41
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-23.231

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	342724.788	1.806	0.609	46.220	2.1	ug/L
|>	In	115	562574.494	1.114	562574.494			ug/L
⌊	Sb	121	280476.270	1.538	0.498	48.272	1.8	ug/L

Ag 92.44

Sb 96.5

Method 200.8 - Summary Report

Sample ID: CCV-24
Sample Date/Time: Thursday, September 08, 2011 18:35:31
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-24.244

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	369059.838	1.838	0.639	48.485	2.7	ug/L
|>	In	115	577563.132	1.074	577563.132			ug/L
⌊	Sb	121	295717.534	1.640	0.512	49.579	2.4	ug/L

Ag 96.97

Sb 99.1

Method 200.8 - Summary Report

Sample ID: CCV-25
Sample Date/Time: Thursday, September 08, 2011 18:46:22
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCV
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCV-25.254

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	357594.562	2.373	0.626	47.540	2.8	ug/L
| >	In	115	570694.553	0.810	570694.553			ug/L
⌊	Sb	121	291021.067	2.364	0.510	49.375	2.7	ug/L

Ag 95.1

Sb 98.8

Sample ID: CCV-25
Report Date/Time: Thursday, September 08, 2011 18:51:51
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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS True	Found	%R	CRDL Standard for ICP Initial True	Found	%R	Final Found	%R
Aluminum	10.0	9.16	91.6					
Aluminum	10.0	9.44	94.4					
Aluminum	10.0	9.94	99.5					
Arsenic	0.3	0.26	87.3					
Arsenic	1.0	0.88	87.8					
Arsenic	1.0	0.92	92.4					
Barium	5.0	4.57	91.5					
Barium	5.0	5.00	100.0					
Barium	5.0	4.83	96.5					
Beryllium	0.2	0.22	111.0					
Beryllium	0.2	0.22	111.0					
Beryllium	0.2	0.22	112.0					
Cadmium	0.2	0.21	103.5					
Cadmium	0.2	0.22	110.0					
Cadmium	0.2	0.17	83.5					
Calcium	200.0	177.88	88.9					
Calcium	200.0	213.95	107.0					
Calcium	200.0	169.35	84.7					
Chromium	2.0	2.10	104.9					
Chromium	2.0	2.06	102.9					
Chromium	2.0	2.03	101.5					
Cobalt	1.0	1.03	102.7					
Cobalt	1.0	1.00	100.0					
Cobalt	1.0	1.03	103.3					
Copper	1.0	1.13	113.4					
Copper	1.0	1.10	110.3					
Copper	1.0	1.07	107.3					
Iron	40.0	42.46	106.2					
Iron	40.0	42.44	106.1					
Iron	40.0	43.24	108.1					
Lead	0.2	0.22	111.0					
Lead	0.2	0.22	108.0					
Lead	0.2	0.22	108.0					
Magnesium	100.0	83.76	83.8					
Magnesium	100.0	83.69	83.7					
Magnesium	100.0	106.24	106.2					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Manganese	1.0	0.95	94.6					
Manganese	1.0	0.96	96.3					
Manganese	1.0	0.97	97.0					
Nickel	2.0	1.96	98.2					
Nickel	2.0	2.06	103.0					
Nickel	2.0	1.99	99.5					
Potassium	100.0	110.22	110.2					
Potassium	100.0	106.98	107.0					
Potassium	100.0	113.26	113.3					
Selenium	1.0	1.01	100.6					
Selenium	1.0	0.96	95.5					
Selenium	1.0	1.08	107.9					
Sodium	100.0	80.73	80.7					
Sodium	100.0	81.30	81.3					
Sodium	100.0	104.18	104.2					
Thallium	0.4	0.42	105.3					
Thallium	0.4	0.41	102.3					
Thallium	0.4	0.40	99.3					
Vanadium	0.8	0.92	115.6					
Vanadium	0.8	0.92	114.4					
Vanadium	0.8	0.92	114.8					
Zinc	10.0	10.07	100.7					
Zinc	10.0	9.56	95.6					
Zinc	10.0	9.39	93.9					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source: ICPMS AAC-STD-6B1

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.94	99.5					
Antimony	0.0	0.00	106.2					
Antimony	0.0	0.00	104.8					
Antimony	0.0	0.00	104.0					
Arsenic	0.3	0.26	87.3					
Barium	5.0	5.00	100.0					
Beryllium	0.2	0.22	112.0					
Cadmium	0.2	0.22	110.0					
Calcium	200.0	213.95	107.0					
Chromium	2.0	2.10	104.9					
Cobalt	1.0	1.03	102.7					
Copper	1.0	1.07	107.3					
Iron	40.0	42.44	106.1					
Lead	0.2	0.22	108.0					
Magnesium	100.0	106.24	106.2					
Manganese	1.0	0.97	97.0					
Molybdenum	1.0	-0.06	-6.4					
Nickel	2.0	2.06	103.0					
Potassium	100.0	113.26	113.3					
Selenium	1.0	1.08	107.9					
Silver	0.0	0.00	90.3					
Silver	0.0	0.00	89.3					
Silver	0.0	0.00	85.7					
Sodium	100.0	104.18	104.2					
Thallium	0.4	0.42	105.3					
Vanadium	0.8	0.92	114.4					
Zinc	10.0	10.07	100.7					

PROJ_N	NSAMPLE	PARA	LAB_RES	VAL_RES	LAB_QI	VAL_QL	QUAL_	LOD	REP_LIMIT	REP_LIMIT_TYPE
02073	IOA-SO-DUP05-081511	SELENIUM	370	370	J	U	A	✓550	740	PQL
02073	IOA-SO-RIA33-SB02-0507	SELENIUM	310	310	J	U	A	✓650	870	PQL
02073	IOA-SO-RIA33-SB04-0305	ANTIMONY	83	83	J	U	A	42	210	PQL
02073	IOA-SO-RIA33-SB04-0305	SELENIUM	450	450	J	U	A	✓650	870	PQL
02073	IOA-SO-RIA33-SB08-0305	ANTIMONY	56	56	J	U	A	40	200	PQL
02073	IOA-SO-RIA33-SB10-0305	ANTIMONY	130	130	J	U	A	45	230	PQL
02073	IOA-SO-RIA33-SB10-0305	SELENIUM	530	530	J	U	A	520	690	PQL
02073	IOA-SO-RIA82-01A-0608	ANTIMONY	66	66	J	U	A	41	210	PQL
02073	IOA-SO-RIA82-01A-0608	BERYLLIUM	170	170	J	U	A	170	330	PQL
02073	IOA-SO-RIA82-01A-0608	CADMIUM	74	74	J	U	A	✓83	170	PQL
02073	IOA-SO-RIA82-01A-0608	SELENIUM	320	320	J	U	A	✓620	830	PQL
02073	IOA-SO-RIA82-02A-0608	ANTIMONY	94	94	J	U	A	43	220	PQL
02073	IOA-SO-RIA82-03A-0608	ANTIMONY	69	69	J	U	A	39	200	PQL
02073	IOA-SO-RIA82-04A-0608	ANTIMONY	65	65	J	U	A	40	200	PQL
02073	IOA-SO-RIA82-04A-0608	BERYLLIUM	260	260	J	U	A	180	360	PQL
02073	IOA-SO-RIA82-04A-0608	CADMIUM	110	110	J	U	A	91	180	PQL
02073	IOA-SS-DUP04-081111	ANTIMONY	72	72	J	U	A	34	170	PQL
02073	IOA-SS-EU12-0002	ANTIMONY	89	89	J	U	A	41	210	PQL
02073	IOA-SS-EU12-0002	SELENIUM	750	750	J	U	A	✓760	1000	PQL
02073	IOA-SS-EU19-0002	ANTIMONY	97	97	J	U	A	42	210	PQL
02073	IOA-SS-EU19-0002	SELENIUM	230	230	J	U	A	✓580	780	PQL
02073	IOA-SS-EU32-0002	ANTIMONY	88	88	J	U	A	48	240	PQL
02073	IOA-SS-EU32-0002	CADMIUM	130	130	J	U	A	93	190	PQL

Blanks

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Aluminum	0.00013	J	0.00013	J	0.00013	U	0.00013	U			N
Arsenic	0.018	J	0.00012	J	0.00012	J	0.00012	J	0.015	U	N
Barium	0.0060	J	0.0040	J	0.010	J	0.0060	J	0.25	U	N
Beryllium	0.030	J	0.044	J	0.044	J	0.047	J	0.020	U	N
Cadmium	0.0050	J	0.017	J	0.029	J	0.0010	J	0.010	U	N
Calcium	0.0035	J	0.0035	J	0.0035	U	0.0035	U			N
Chromium	0.010	J	0.022	J	0.032	J	0.000054	J	0.10	U	N
Cobalt	0.0070	J	0.0060	J	0.0090	J	0.0090	J	0.050	U	N
Copper	0.022	J	0.000041	J	0.0090	J	0.000041	J	0.050	U	N
Iron	4.5	J	3.9	J	0.0015	U	0.0015	U			N
Lead	0.0090	J	0.0070	J	0.011	J	0.0080	J	0.010	U	N
Magnesium	0.52	J	0.33	J	0.035	U	0.035	U			N
Manganese	0.0090	J	0.000022	J	0.000022	U	0.000022	U			N
Nickel	0.024	J	0.000025	J	0.000025	J	0.000025	J	0.10	U	N
Potassium	4.6	J	4.4	J	0.0020	U	0.0020	U			N
Selenium	0.00029	J	0.20	J	0.086	J	0.12	J	0.050	U	N
Sodium	0.59	J	0.0029	J	0.0029	U	0.0029	U			N
Thallium	0.012	J	0.012	J	0.013	J	0.0090	J	0.020	U	N
Vanadium	0.049	J	0.20	J	0.12	J	0.19	J	0.0078	J	N
Zinc	0.016	J	0.00012	J	0.00012	J	0.00012	J	0.50	U	N

see raw data for CCV's if negative in raw data "J" on summary sheets

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C
Aluminum	0.00013	J	0.00013	J	0.00013	U	0.00013	U		
Arsenic	0.018	J	0.00012	J	0.00012	J	0.00012	J		
Barium	0.0060	J	0.0040	J	0.010	J	0.0060	J		
Beryllium	0.030	J	0.044	J	0.044	J	0.047	J		
Cadmium	0.0050	J	0.017	J	0.029	J	0.0010	J		
Calcium	0.0035	J	0.0035	J	0.0035	U	0.0035	U	10	U
Chromium	0.010	J	0.022	J	0.032	J	0.000054	J		
Cobalt	0.0070	J	0.0060	J	0.0090	J	0.0090	J		
Copper	0.022	J	0.000041	J	0.0090	J	0.000041	J		
Iron	4.5	J	3.9	J	0.0015	U	0.0015	U		
Lead	0.0090	J	0.0070	J	0.011	J	0.0080	J		
Magnesium	0.52	J	0.33	J	0.035	U	0.035	U	5.0	U
Manganese	0.0090	J	0.000022	J	0.000022	U	0.000022	U		
Nickel	0.024	J	0.000025	J	0.000025	J	0.000025	J		
Potassium	4.6	J	4.4	J	0.0020	U	0.0020	U	5.0	U
Selenium	0.00029	J	0.20	J	0.086	J	0.12	J		
Sodium	0.59	J	0.0029	J	0.0029	U	0.0029	U	5.0	U
Thallium	0.012	J	0.012	J	0.013	J	0.0090	J		
Vanadium	0.049	J	0.20	J	0.12	J	0.19	J		
Zinc	0.016	J	0.00012	J	0.00012	J	0.00012	J		

sld raw data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C
Aluminum	0.00013	J	0.00013	J	0.00013	U	0.00013	U	0.50	U
Arsenic	0.018	J	0.00012	J	0.00012	J	0.00012	J		
Barium	0.0060	J	0.0040	J	0.010	J	0.0060	J		
Beryllium	0.030	J	0.044	J	0.044	J	0.047	J		
Cadmium	0.0050	J	0.017	J	0.029	J	0.0010	J		
Calcium	0.0035	J	0.0035	J	0.0035	U	0.0035	U		
Chromium	0.010	J	0.022	J	0.032	J	0.000054	J		
Cobalt	0.0070	J	0.0060	J	0.0090	J	0.0090	J		
Copper	0.022	J	0.000041	J	0.0090	J	0.000041	J		
Iron	4.5	J	3.9	J	0.0015	U	0.0015	U	2.0	U
Lead	0.0090	J	0.0070	J	0.011	J	0.0080	J		
Magnesium	0.52	J	0.33	J	0.035	U	0.035	U		
Manganese	0.0090	J	0.000022	J	0.000022	U	0.000022	U	0.050	U
Nickel	0.024	J	0.000025	J	0.000025	J	0.000025	J		
Potassium	4.6	J	4.4	J	0.0020	U	0.0020	U		
Selenium	0.00029	J	0.20	J	0.086	J	0.12	J		
Sodium	0.59	J	0.0029	J	0.0029	U	0.0029	U		
Thallium	0.012	J	0.012	J	0.013	J	0.0090	J		
Vanadium	0.049	J	0.20	J	0.12	J	0.19	J		
Zinc	0.016	J	0.00012	J	0.00012	J	0.00012	J		

See raw data

FORM III - IN

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Aluminum			0.00013	U	0.00013	U	0.00013	U			N
Antimony	0.000034		0.000034	U	0.000034	U	0.000034	U			N
Arsenic			0.00012	J	0.00012	U	0.00012	U			N
Barium			0.0080	J	0.000018	U	0.000018	U			N
Beryllium			0.066	J	0.000038	U	0.000038	U			N
Cadmium			0.0080	J	0.000022	U	0.000022	U			N
Calcium			0.0035	U	0.0035	J	0.0035	J			N
Chromium			0.000054	J	0.000054	U	0.000054	U			N
Cobalt			0.014	J	0.000010	U	0.000010	U			N
Copper			0.000041	J	0.000041	U	0.000041	U			N
Iron			0.0015	U	0.0015	U	0.0015	U			N
Lead			0.0080	J	0.000018	U	0.000018	U			N
Magnesium			0.035	U	1.9	J	0.035	U			N
Manganese			0.000022	U	0.000022	U	0.000022	U			N
Nickel			0.000025	J	0.000025	U	0.000025	U			N
Potassium			0.0020	U	11	J	14	J			N
Selenium			0.36	J	0.00029	U	0.00029	U			N
Silver	0.000027		0.000027	U	0.000027	U	0.000027	U			N
Sodium			0.0029	U	0.0029	J	0.0029	J			N
Thallium			0.0080	J	0.000021	U	0.000021	U			N
Vanadium			0.16	J	0.000023	U	0.000023	U			N
Zinc			0.00012	J	0.00012	U	0.00012	U			N

see raw data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Aluminum			0.00013	U	0.00013	U	0.00013	U			
Antimony	0.000034		0.000034	U	0.000034	U	0.000034	U			
Arsenic			0.00012	J	0.00012	U	0.00012	U			
Barium			0.0080	J	0.000018	U	0.000018	U			
Beryllium			0.066	J	0.000038	U	0.000038	U			
Cadmium			0.0080	J	0.000022	U	0.000022	U			
Calcium			0.0035	U	0.0035	J	0.0035	J			
Chromium			0.000054	J	0.000054	U	0.000054	U			
Cobalt			0.014	J	0.000010	U	0.000010	U			
Copper			0.000041	J	0.000041	U	0.000041	U			
Iron			0.0015	U	0.0015	U	0.0015	U			
Lead			0.0080	J	0.000018	U	0.000018	U			
Magnesium			0.035	U	1.9	J	0.035	U			
Manganese			0.000022	U	0.000022	U	0.000022	U			
Nickel			0.000025	J	0.000025	U	0.000025	U			
Potassium			0.0020	U	11	J	14	J			
Selenium			0.36	J	0.00029	U	0.00029	U			
Silver	0.000027		0.000027	U	0.000027	U	0.000027	U			
Sodium			0.0029	U	0.0029	J	0.0029	J			
Thallium			0.0080	J	0.000021	U	0.000021	U			
Vanadium			0.16	J	0.000023	U	0.000023	U			
Zinc			0.00012	J	0.00012	U	0.00012	U			

see raw data

FORM III - IN

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Aluminum			0.00013	U	0.00013	U	0.00013	U			N
Antimony	0.000034		0.000034	U	0.000034	U	0.000034	U			N
Arsenic			0.00012	J	0.00012	U	0.00012	U			N
Barium			0.0080	J	0.000018	U	0.000018	U			N
Beryllium			0.066	J	0.000038	U	0.000038	U			N
Cadmium			0.0080	J	0.000022	U	0.000022	U			N
Calcium			0.0035	U	0.0035	J	0.0035	J			N
Chromium			0.000054	J	0.000054	U	0.000054	U			N
Cobalt			0.014	J	0.000010	U	0.000010	U			N
Copper			0.000041	J	0.000041	U	0.000041	U			N
Iron			0.0015	U	0.0015	U	0.0015	U			N
Lead			0.0080	J	0.000018	U	0.000018	U			N
Magnesium			0.035	U	1.9	J	0.035	U			N
Manganese			0.000022	U	0.000022	U	0.000022	U			N
Nickel			0.000025	J	0.000025	U	0.000025	U			N
Potassium			0.0020	U	11	J	14	J			N
Selenium			0.36	J	0.00029	U	0.00029	U			N
Silver	0.000027		0.000027	U	0.000027	U	0.000027	U			N
Sodium			0.0029	U	0.0029	J	0.0029	J			N
Thallium			0.0080	J	0.000021	U	0.000021	U			N
Vanadium			0.16	J	0.000023	U	0.000023	U			N
Zinc			0.00012	J	0.00012	U	0.00012	U			N

see raw data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	J	0.0035	J	0.0035	U			N
Magnesium			1.3	J	1.0	J	0.035	U			N
Potassium			15	J	12	J	0.0020	U			N
Sodium			0.0029	J	0.0029	J	0.0029	U			N

see raw data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	J	0.0035	J	0.0035	U			N
Magnesium			1.3	J	1.0	J	0.035	U			N
Potassium			15	J	12	J	0.0020	U			N
Sodium			0.0029	J	0.0029	J	0.0029	U			N

see raw data

FORM III - IN

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	J	0.0035	J	0.0035	U			M
Magnesium			1.3	J	1.0	J	0.035	U			M
Potassium			15	J	12	J	0.0020	U			M
Sodium			0.0029	J	0.0029	J	0.0029	U			M

see raw data

FORM III - IN I]

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	U	0.0035	U	0.0035	U			N
Magnesium			0.035	U	0.035	U	0.035	U			N
Potassium			0.0020	U	0.0020	U	0.0020	U			N
Sodium			0.0029	U	0.0029	U	0.0029	U			N

see rev data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	U	0.0035	U	0.0035	U			N
Magnesium			0.035	U	0.035	U	0.035	U			N
Potassium			0.0020	U	0.0020	U	0.0020	U			N
Sodium			0.0029	U	0.0029	U	0.0029	U			N

see raw data

FORM III - IN II

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42693 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23333 Prepa-ration Blank	C	
Calcium			0.0035	U	0.0035	U	0.0035	U			N
Magnesium			0.035	U	0.035	U	0.035	U			N
Potassium			0.0020	U	0.0020	U	0.0020	U			N
Sodium			0.0029	U	0.0029	U	0.0029	U			N

see raw data

Method 200.8 - Summary Report

Sample ID: CCB-01
Sample Date/Time: Thursday, September 08, 2011 09:34:39
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+b,be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-01.017

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	21660.442	0.836	21660.442			ug/L
	Be	9	20.667	45.734	0.000	0.044	96.5	ug/L
	B	11	1275.424	11.485	0.052	5.869	14.1	ug/L
>	Sc	45	218284.956	0.569	218284.956			ug/L
	V	51	666.946	30.096	0.004	0.121	23.1	ug/L
	Cr	52	5560.367	1.453	0.001	0.032	38.5	ug/L
	Cr	53	4259.665	2.852	-0.017	-5.171	2.9	ug/L
	Co	59	125.334	37.774	0.000	0.009	68.1	ug/L
	Ni	60	364.007	7.433	-0.001	-0.112	13.2	ug/L
	Cu	63	552.684	7.472	0.000	0.009	110.1	ug/L
	Cu	65	301.338	1.014	0.000	0.009	24.3	ug/L
	Zn	66	399.342	0.765	-0.000	-0.026	5.0	ug/L
	Zn	67	518.681	5.178	-0.001	-1.707	6.2	ug/L
	Zn	68	390.675	16.702	-0.000	-0.051	120.6	ug/L
>	Ge	72	371450.057	0.329	371450.057			ug/L
	As	75	449.344	3.281	-0.000	-0.081	11.9	ug/L
	Se	77	196.669	10.288	-0.000	-0.536	30.8	ug/L
	Se	82	4.352	731.538	0.000	0.086	247.9	ug/L
	Y	89	528179.061	0.133	-48964.109			ug/L
	Cd	111	394.659	8.157	0.000	0.029	55.4	ug/L
	Cd	114	76.960	63.229	0.000	0.004	216.2	ug/L
>	In	115	617843.755	1.010	617843.755			ug/L
	Ba	137	80.565	17.644	0.000	0.010	49.7	ug/L
>	Tb	159	717194.393	0.494	717194.393			ug/L
	Tl	205	317.339	13.581	0.000	0.013	24.2	ug/L
	Tl	203	142.668	29.484	0.000	0.014	53.8	ug/L
	Pb	208	516.673	23.033	0.000	0.011	61.5	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-02
Sample Date/Time: Thursday, September 08, 2011 10:34:18
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-02.030

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	20960.806	1.354	20960.806			ug/L
	Be	9	20.667	20.145	0.000	0.047	41.0	ug/L
>	Sc	45	217182.304	0.268	217182.304			ug/L
	V	51	1177.436	23.722	0.006	0.192	19.9	ug/L
	Cr	52	5262.189	1.515	-0.000	-0.013	94.0	ug/L
	Cr	53	3213.235	3.629	-0.022	-6.610	2.6	ug/L
	Co	59	124.668	45.158	0.000	0.009	80.2	ug/L
	Ni	60	308.672	8.457	-0.001	-0.142	10.1	ug/L
	Cu	63	458.012	12.888	-0.000	-0.012	110.1	ug/L
	Cu	65	229.336	14.523	-0.000	-0.025	63.4	ug/L
	Zn	66	366.674	3.464	-0.000	-0.050	20.7	ug/L
	Zn	67	378.675	6.519	-0.001	-2.296	4.4	ug/L
	Zn	68	385.342	10.241	-0.000	-0.058	59.5	ug/L
>	Ge	72	372854.306	0.957	372854.306			ug/L
	As	75	345.340	6.380	-0.001	-0.144	7.8	ug/L
	Se	77	178.002	1.124	-0.000	-0.697	4.2	ug/L
	Se	82	9.931	609.290	0.000	0.125	323.9	ug/L
	Y	89	525896.377	0.925	-51246.793			ug/L
	Cd	111	328.298	8.584	0.000	0.001	1266.8	ug/L
	Cd	114	83.034	20.747	0.000	0.006	56.0	ug/L
>	In	115	606923.261	0.889	606923.261			ug/L
	Ba	137	68.475	15.048	0.000	0.006	61.6	ug/L
>	Tb	159	708602.606	0.196	708602.606			ug/L
	Tl	205	251.337	21.239	0.000	0.009	47.8	ug/L
	Tl	203	114.667	37.907	0.000	0.009	86.1	ug/L
	Pb	208	461.338	22.670	0.000	0.008	74.6	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-03
Sample Date/Time: Thursday, September 08, 2011 11:01:23
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-03.041

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	20744.310	1.099	20744.310			ug/L
	Be	9	24.667	28.475	0.001	0.066	50.9	ug/L
>	Sc	45	212086.928	1.041	212086.928			ug/L
	V	51	897.916	19.598	0.005	0.157	16.7	ug/L
	Cr	52	5189.481	2.398	-0.000	-0.004	744.5	ug/L
	Cr	53	2879.123	1.043	-0.023	-6.982	0.9	ug/L
	Co	59	164.002	44.957	0.001	0.014	67.6	ug/L
	Ni	60	280.671	9.409	-0.001	-0.154	10.9	ug/L
	Cu	63	444.678	12.386	-0.000	-0.013	111.2	ug/L
	Cu	65	238.670	10.677	-0.000	-0.018	76.4	ug/L
	Zn	66	316.672	8.850	-0.000	-0.083	25.1	ug/L
	Zn	67	360.007	15.556	-0.002	-2.348	9.6	ug/L
	Zn	68	352.007	14.696	-0.000	-0.084	56.7	ug/L
>	Ge	72	366377.351	0.773	366377.351			ug/L
	As	75	345.340	6.028	-0.001	-0.140	8.4	ug/L
	Se	77	177.335	4.558	-0.000	-0.677	9.8	ug/L
	Se	82	44.720	46.742	0.000	0.359	39.1	ug/L
	Y	89	518194.850	1.431	-58948.319			ug/L
	Cd	111	340.680	4.896	0.000	0.008	93.2	ug/L
	Cd	114	94.807	39.646	0.000	0.008	90.2	ug/L
>	In	115	602786.868	0.549	602786.868			ug/L
	Ba	137	73.213	8.332	0.000	0.008	31.0	ug/L
>	Tb	159	706962.515	0.872	706962.515			ug/L
	Tl	205	238.003	32.774	0.000	0.008	79.6	ug/L
	Tl	203	116.667	26.354	0.000	0.010	59.4	ug/L
	Pb	208	468.672	38.115	0.000	0.008	121.2	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-05
Sample Date/Time: Thursday, September 08, 2011 11:44:42
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-05.054

Summary

Concentration Results

Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
Na	23	8745.538	0.951	-0.021	-1.690	3.4	ug/L
Mg	24	1070.063	3.566	-0.000	-0.003	947.4	ug/L
K	39	768293.175	0.405	0.378	14.350	5.1	ug/L
Ca	43	420.676	1.921	-0.001	-19.644	5.1	ug/L
Ca	44	34950.389	0.256	-0.057	-62.437	1.8	ug/L
> Sc-1	45	202541.513	0.836	202541.513			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-06
Sample Date/Time: Thursday, September 08, 2011 12:22:07
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-06.067

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	12465.223	5.295	-0.006	-0.486	48.2	ug/L
|	Mg	24	3350.624	12.611	0.010	1.251	18.8	ug/L
|	K	39	814243.275	0.425	0.397	15.071	9.6	ug/L
|	Ca	43	407.343	8.424	-0.001	-22.626	11.7	ug/L
|	Ca	44	35304.419	0.175	-0.065	-70.335	2.7	ug/L
⌊>	Sc-1	45	213592.884	0.953	213592.884			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-07
Sample Date/Time: Thursday, September 08, 2011 12:33:22
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-03.078

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	9934.771	5.767	-0.018	-1.442	17.5	ug/L
|	Mg	24	2966.489	13.005	0.009	1.028	22.9	ug/L
|	K	39	801284.850	0.365	0.318	12.071	9.5	ug/L
|	Ca	43	406.676	5.048	-0.001	-22.844	5.8	ug/L
|	Ca	44	38895.030	0.578	-0.049	-53.029	3.6	ug/L
⌊>	Sc-1	45	214643.938	1.131	214643.938			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-09
Sample Date/Time: Thursday, September 08, 2011 13:25:02
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-09.091

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	2223.607	10.744	0.001	0.091	102.6	ug/L
| >	Sc	45	222109.504	1.286	222109.504			ug/L
⌊	Mn	55	920.713	3.136	-0.001	-0.022	18.2	ug/L
⌈	Fe	54	24944.632	1.278	0.003	1.448	67.7	ug/L
|	Fe	57	7085.427	0.283	0.005	5.781	6.3	ug/L
⌊ >	Sc-1	45	222109.504	1.286	222109.504			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-10
Sample Date/Time: Thursday, September 08, 2011 14:00:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-10.103

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1210.747	2.279	-0.004	-0.273	3.8	ug/L
|>	Sc	45	227515.835	0.409	227515.835			ug/L
⌊	Mn	55	875.376	11.125	-0.001	-0.029	34.6	ug/L
⌈	Fe	54	28235.997	2.187	0.015	7.230	20.3	ug/L
|	Fe	57	7964.821	0.869	0.008	9.204	2.2	ug/L
⌊>	Sc-1	45	227515.835	0.409	227515.835			ug/L

Method 200.8 - Summary Report

Sample ID: CCB-11
Sample Date/Time: Thursday, September 08, 2011 14:15:07
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,CCB
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-11.114

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1132.737	3.111	-0.004	-0.297	5.4	ug/L
|>	Sc	45	226136.270	1.182	226136.270			ug/L
⌊	Mn	55	566.684	4.958	-0.003	-0.061	4.3	ug/L
⌈	Fe	54	24901.893	1.124	0.001	0.379	323.8	ug/L
|	Fe	57	6530.347	3.602	0.002	2.444	43.1	ug/L
⌊>	Sc-1	45	226136.270	1.182	226136.270			ug/L

Method 200.8 - Summary Report

Sample ID: MB-23333
Sample Date/Time: Thursday, September 08, 2011 10:10:52
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\m10+\noeq as,se\m10+be,co,ni,tl,v no eq as.mth
Dataset File: C:\Elandata\DataSet\090811\MB-23333.020

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
>	Li-1	6	20371.466	0.256	20371.466			ug/L
	Be	9	18.000	11.111	0.000	0.037	25.8	ug/L
>	Sc	45	208702.014	1.291	208702.014			ug/L
	V	51	878.860	31.163	0.005	0.156	24.9	ug/L
	Cr	52	5316.888	2.635	0.001	0.032	106.4	ug/L
	Cr	53	3681.412	2.920	-0.019	-5.741	3.8	ug/L
	Co	59	88.000	15.746	0.000	0.005	42.5	ug/L
	Ni	60	292.671	13.275	-0.001	-0.144	17.0	ug/L
	Cu	63	324.672	7.528	-0.001	-0.041	16.6	ug/L
	Cu	65	158.001	8.861	-0.001	-0.056	12.3	ug/L
	Zn	66	377.341	9.949	-0.000	-0.032	85.2	ug/L
	Zn	67	429.343	6.290	-0.001	-2.016	5.7	ug/L
	Zn	68	386.008	6.795	-0.000	-0.043	60.1	ug/L
>	Ge	72	358730.340	0.432	358730.340			ug/L
	As	75	327.339	4.504	-0.001	-0.147	6.5	ug/L
	Se	77	154.001	1.299	-0.000	-0.846	1.4	ug/L
	Se	82	-28.165	65.501	-0.000	-0.138	92.3	ug/L
	Y	89	516431.506	0.256	-60711.663			ug/L
	Cd	111	352.094	14.485	0.000	0.016	158.1	ug/L
	Cd	114	63.384	29.549	0.000	0.002	173.2	ug/L
>	In	115	594410.558	0.277	594410.558			ug/L
	Ba	137	160.533	59.456	0.000	0.039	88.1	ug/L
>	Tb	159	713823.881	0.425	713823.881			ug/L
	Tl	205	171.335	1.783	0.000	0.002	8.2	ug/L
	Tl	203	76.000	15.790	0.000	0.002	101.7	ug/L
	Pb	208	350.003	15.877	0.000	0.002	201.1	ug/L

Method 200.8 - Summary Report

Sample ID: MB-23333
Sample Date/Time: Thursday, September 08, 2011 11:50:09
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\MB-23333.056

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Na	23	8834.961	3.349	-0.021	-1.639	6.9	ug/L
|	Mg	24	1011.390	5.162	-0.000	-0.035	83.2	ug/L
|	K	39	769156.874	0.122	0.401	15.208	6.3	ug/L
|	Ca	43	402.676	1.434	-0.001	-21.036	1.5	ug/L
|	Ca	44	36185.208	0.766	-0.050	-54.877	1.5	ug/L
⌊>	Sc-1	45	201567.498	0.570	201567.498			ug/L

Method 200.8 - Summary Report

Sample ID: MB-23333
Sample Date/Time: Thursday, September 08, 2011 13:28:53
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S,MBLK
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\MB-23333.092

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	1761.508	0.858	-0.001	-0.069	5.8	ug/L
|>	Sc	45	223807.135	1.448	223807.135			ug/L
⌊	Mn	55	698.027	7.800	-0.002	-0.046	13.5	ug/L
⌈	Fe	54	23568.390	1.516	-0.004	-1.991	12.7	ug/L
|	Fe	57	6673.117	3.436	0.003	3.474	19.7	ug/L
⌊>	Sc-1	45	223807.135	1.448	223807.135			ug/L

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42726 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23334 Prepa-ration Blank	C	
Aluminum	0.00013	J	0.00013	J							
Antimony	0.00013	J	0.000034	U	0.000034	U	0.00012	J	0.025	U	
Arsenic	0.018	J	0.00012	J							
Barium	0.0060	J	0.0040	J							
Beryllium	0.030	J	0.044	J							
Cadmium	0.0050	J	0.017	J							
Calcium	0.0035	J	0.0035	J							
Chromium	0.010	J	0.022	J							
Cobalt	0.0070	J	0.0060	J							
Copper	0.022	J	0.000041	J							
Iron	4.5	J	3.9	J							
Lead	0.0090	J	0.0070	J							
Magnesium	0.52	J	0.33	J							
Manganese	0.0090	J	0.000022	J							
Nickel	0.024	J	0.000025	J							
Potassium	4.6	J	4.4	J							
Selenium	0.00029	J	0.20	J							
Silver	0.000027	U	0.000027	U	0.000027	U	0.000027	U	0.015	U	
Sodium	0.59	J	0.0029	J							
Thallium	0.012	J	0.012	J							
Vanadium	0.049	J	0.20	J							
Zinc	0.016	J	0.00012	J							

see raw data

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42726 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23334 Prepa-ration Blank	C	
Antimony			0.000096	J	0.000096	J	0.000084	J			N
Silver			0.000027	U	0.000027	U	0.000027	U			N

see raw data

Method 200.8 - Summary Report

Sample ID: CCB-23
Sample Date/Time: Thursday, September 08, 2011 18:18:48
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-23.232

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[	Ag	107	100.667	2.294	-0.000	-0.005	7.3	ug/L
| >	In	115	564497.216	1.030	564497.216			ug/L
[	Sb	121	796.702	5.616	0.001	0.096	7.0	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-24
Sample Date/Time: Thursday, September 08, 2011 18:39:22
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-24.245

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	102.001	8.547	-0.000	-0.005	21.2	ug/L
| >	In	115	575523.343	0.046	575523.343			ug/L
⌊	Sb	121	739.363	6.539	0.001	0.084	9.7	ug/L

Method 200.8 - Summary Report

Sample ID: CCB-25
Sample Date/Time: Thursday, September 08, 2011 18:49:49
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,CCB
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\CCB-25.255

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
[	Ag	107	96.667	12.471	-0.000	-0.006	27.2	ug/L
|>	In	115	570207.033	0.241	570207.033			ug/L
[	Sb	121	856.707	1.986	0.001	0.105	3.0	ug/L

Method 200.8 - Summary Report

Sample ID: MB-23334
Sample Date/Time: Thursday, September 08, 2011 18:22:07
Sample Type: Sample
Sample Description:
Number of Replicates: 3
Batch ID: SW_6020S-SA,MBLK
Method File: C:\Elandata\Method\ag+\ag,sb.mth
Dataset File: C:\Elandata\DataSet\090811\MB-23334.234

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Ag	107	134.001	14.238	-0.000	-0.002	130.3	ug/L
| >	In	115	596134.894	0.393	596134.894			ug/L
⌊	Sb	121	464.679	3.173	0.000	0.035	6.0	ug/L

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108481

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	9196	9122.0	91.2			
Antimony	0	0	0	0.0	0.0			
Arsenic	0	20	0	19.5	97.6			
Barium	0	0	0	0.1	0.0			
Beryllium	0	0	0	0.1	0.0			
Cadmium	0	20	0	18.8	93.9			
Calcium	10000	10000	9337	9601.1	96.0			
Chromium	0	20	0	20.6	103.0			
Cobalt	0	20	0	20.4	102.2			
Copper	0	20	0	20.8	103.8			
Iron	10000	10000	9266	9565.2	95.7			
Lead	0	0	0	0.1	0.0			
Magnesium	10000	10000	9215	9054.8	90.5			
Manganese	0	20	0	20.7	103.4			
Nickel	0	20	0	20.7	103.4			
Potassium	10000	10000	9354	9554.8	95.5			
Selenium	0	0	0	0.1	0.0			
Silver	0	20	0	0.0	0.0			
Sodium	10000	10000	9200	9212.9	92.1			
Thallium	0	0	0	0.0	0.0			
Vanadium	0	0	0	-0.3	0.0			
Zinc	0	20	1	20.7	103.6			

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108481

ICP ID Number: ICPMS3 ICS Source: ICPMS 6020ICS-0A-1 012

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Final Found Sol. A	Final Found Sol. AB	Final Found %R	Found Sol. A	Found Sol. AB	Found %R
Aluminum	10000	10000	9196	9122.0	91.2			
Antimony	0	0	0	0.0	0.0	0	0.0	
Arsenic	0	20	0	19.5	97.6			
Barium	0	0	0	0.1	0.0			
Beryllium	0	0	0	0.1	0.0			
Cadmium	0	20	0	18.8	93.9			
Calcium	10000	10000	9337	9601.1	96.0			
Chromium	0	20	0	20.6	103.0			
Cobalt	0	20	0	20.4	102.2			
Copper	0	20	0	20.8	103.8			
Iron	10000	10000	9266	9565.2	95.7			
Lead	0	0	0	0.1	0.0			
Magnesium	10000	10000	9215	9054.8	90.5			
Manganese	0	20	0	20.7	103.4			
Nickel	0	20	0	20.7	103.4			
Potassium	10000	10000	9354	9554.8	95.5			
Selenium	0	0	0	0.1	0.0			
Silver	0	20	0	0.0	89.9	0	0.0	0.0
Sodium	10000	10000	9200	9212.9	92.1			
Thallium	0	0	0	0.0	0.0			
Vanadium	0	0	0	-0.3	0.0			
Zinc	0	20	1	20.7	103.6			

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SO-RIA33-SB10-0305S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 95.4

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		7015.8958		6737.6356		34.47	807.2	OL	MS
Antimony	80-120	39.7754		0.1269	J	43.67	90.8		MS
Arsenic	80-120	35.0007		2.3430		34.47	94.7		MS
Barium	80-120	54.1954		16.5464		34.47	109.2		MS
Beryllium	80-120	36.7457		0.5226		34.47	105.1		MS
Cadmium	80-120	36.8084		0.2769		34.47	106.0		MS
Calcium		2663.2310		1725.0409		344.73	272.2	OL	MS
Chromium	80-120	45.2047		8.9134		34.47	105.3		MS
Cobalt	80-120	40.7667		4.6687		34.47	104.7		MS
Copper	80-120	46.5127		12.0269		34.47	100.0		MS
Iron		11304.7106		10977.9824		344.73	94.8		MS
Lead	80-120	56.7664		16.3167		34.47	117.3		MS
Magnesium		2502.6850		1958.6343		344.73	157.8	OL	MS
Manganese		218.8223		177.3109		34.47	120.4		MS
Mercury	80-120	0.0591		0.0124	J	0.05	96.5		AV
Nickel	80-120	44.2126		8.9037		34.47	102.4		MS
Potassium	80-120	912.3658		363.7033		344.73	159.2		MS
Selenium	80-120	33.4811		0.5261	J	34.47	95.6		MS
Silver	80-120	44.3281		0.1400	U	43.67	101.5		MS
Sodium	80-120	462.8638		58.3548	J	344.73	117.3		MS
Thallium	80-120	40.1579		0.0895	J	34.47	116.2		MS
Vanadium	80-120	50.1144		14.9702		34.47	101.9		MS
Zinc	80-120	70.4888		39.8568		34.47	88.9		MS

Comments:

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SO-RIA33-SB10-0305SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 95.4

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		7190.7960		6737.6356		34.70	1305.9	OL	MS
Antimony	80-120	43.6702		0.1269	J	44.03	98.9		MS
Arsenic	80-120	33.6452		2.3430		34.70	90.2		MS
Barium	80-120	48.7355		16.5464		34.70	92.8		MS
Beryllium	80-120	32.0725		0.5226		34.70	90.9		MS
Cadmium	80-120	32.7999		0.2769		34.70	93.7		MS
Calcium		2038.9947		1725.0409		347.02	90.5		MS
Chromium	80-120	49.6607		8.9134		34.70	117.4		MS
Cobalt	80-120	37.1154		4.6687		34.70	93.5		MS
Copper	80-120	46.1510		12.0269		34.70	98.3		MS
Iron		12043.1389		10977.9824		347.02	306.9	OL	MS
Lead	80-120	50.3429		16.3167		34.70	98.1		MS
Magnesium		2712.0802		1958.6343		347.02	217.1	OL	MS
Manganese		186.8469		177.3109		34.70	27.5		MS
Mercury	80-120	0.0583		0.0124	J	0.05	95.0		AV
Nickel	80-120	42.7141		8.9037		34.70	97.4		MS
Potassium	80-120	601.9980		363.7033		347.02	68.7		MS
Selenium	80-120	31.6388		0.5261	J	34.70	89.7		MS
Silver	80-120	44.7376		0.1400	U	44.03	101.6		MS
Sodium	80-120	348.1161		58.3548	J	347.02	83.5		MS
Thallium	80-120	35.2269		0.0895	J	34.70	101.3		MS
Vanadium	80-120	49.6260		14.9702		34.70	99.9		MS
Zinc	80-120	68.3155		39.8568		34.70	82.0		MS

Comments:

FORM V (Part 1) - IN ILM04.1

5C

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: SAS No.: SDG No.: 1108481

Matrix Spike - Client SampID IOA-SO-RIA33-SB10- Level: (low/med) LOW

COMPOUND	SPIKE ADDED MG/KG	MSD CONCENTRATION MG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aluminum	34.70	7191	1310	2.46	20	80-120
Antimony	44.03	43.67	98.9	9.33	20	80-120
Arsenic	34.70	33.65	90.2	3.95	20	80-120
Barium	34.70	48.74	92.8	10.6	20	80-120
Beryllium	34.70	32.07	90.9	13.6	20	80-120
Cadmium	34.70	32.80	93.7	11.5	20	80-120
Calcium	347.0	2039	90.5	26.6	20	80-120
Chromium	34.70	49.66	117	9.39	20	80-120
Cobalt	34.70	37.12	93.5	9.38	20	80-120
Copper	34.70	46.15	98.3	0.781	20	80-120
Iron	347.0	12040	307	6.33	20	80-120
Lead	34.70	50.34	98.1	12.0	20	80-120
Magnesium	347.0	2712	217	8.03	20	80-120
Manganese	34.70	186.8	27.5	15.8	20	80-120
Mercury	0.04837	0.05833	95.0	1.24	20	80-120
Nickel	34.70	42.71	97.4	3.45	20	80-120
Potassium	347.0	602.0	68.7	41.0	20	80-120
Selenium	34.70	31.64	89.7	5.66	20	80-120
Silver	44.03	44.74	102	0.920	20	80-120
Sodium	347.0	348.1	83.5	28.3	20	80-120
Thallium	34.70	35.23	101	13.1	20	80-120
Vanadium	34.70	49.63	99.9	0.979	20	80-120
Zinc	34.70	68.32	82.0	3.13	20	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: _____ out of 0 outside limits

Spike Recovery: _____ out of 0 outside limits

COMMENTS: _____

FORM V

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108481

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Aluminum				50.0	55.1		110.2
Arsenic				50.0	52.1		104.1
Barium				50.0	52.6		105.2
Beryllium				50.0	51.1		102.2
Cadmium				50.0	48.4		96.8
Calcium				500.0	546.8		109.4
Chromium				50.0	56.5		113.0
Cobalt				50.0	56.7		113.4
Copper				50.0	58.6		117.3
Iron				500.0	511.1		102.2
Lead				50.0	55.9		111.8
Magnesium				500.0	509.0		101.8
Manganese				50.0	50.8		101.7
Nickel				50.0	57.2		114.3
Potassium				500.0	517.9		103.6
Selenium				50.0	51.8		103.6
Sodium				500.0	486.8		97.4
Thallium				50.0	55.1		110.2
Vanadium				50.0	54.6		109.1
Zinc				50.0	51.6		103.3

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108481

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Antimony				50.0	59.1		118.3
Silver				50.0	55.4		110.8

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

ICP SERIAL DILUTIONS

IOA-SO-RI
SB10-03

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.:

Matrix (soil/water): SOIL Level (low/med):

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	194159.60		200534 ~~501.34~~		3.3		MS
Calcium	49710.80		509205 ~~5079.20~~		2.2		MS
Iron	316354.40		33[illegible] ~~830.10~~		6.9 ~~5.0~~		MS
Magnesium	56442.30		57[illegible] ~~5736.30~~		1.6		MS
Manganese	5109.60		5442 ~~13.60~~		6.5		MS
Potassium	10480.90		10770.6 ~~1077.06~~		2.8		MS
Sodium	1681.62	J	1761.4 ~~176.74~~	J	5.1		MS

Method 200.8 - Summary Report

Sample ID: 1108481-016BSD
Sample Date/Time: Thursday, September 08, 2011 12:09:27
Sample Type: Sample
Sample Description: X50
Number of Replicates: 3
Batch ID: SW_6020S,SD
Method File: C:\Elandata\Method\cat+\cat.mth
Dataset File: C:\Elandata\DataSet\090811\1108481-016BSD.065

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
	Na	23	111302.586	0.987	0.445	35.347	1.4	ug/L
	Mg	24	2079069.556	2.233	9.519	1147.275	2.5	ug/L
	K	39	1984580.986	0.627	5.676	215.412	1.8	ug/L
	Ca	43	13389.857	2.346	0.058	1015.841	3.1	ug/L
	Ca	44	250200.548	2.059	0.916	996.001	3.1	ug/L
>	Sc-1	45	218313.646	0.633	218313.646			ug/L

Method 200.8 - Summary Report

Sample ID: 1108481-016BSD
Sample Date/Time: Thursday, September 08, 2011 13:47:07
Sample Type: Sample
Sample Description: X2000
Number of Replicates: 3
Batch ID: SW_6020S,SD
Method File: C:\Elandata\Method\al+\al,mn,fe.mth
Dataset File: C:\Elandata\DataSet\090811\1108481-016BSD.097

Summary

Concentration Results

	Analyte	Mass	Meas. Intens. Mean	Meas. Intens. RSD	Net Intens. Mean	Conc. Mean	Conc. RSD	Sample Unit
⌈	Al	27	292306.040	1.118	1.296	100.267	0.7	ug/L
| >	Sc	45	224091.477	1.682	224091.477			ug/L
⌊	Mn	55	27364.469	2.180	0.117	2.721	1.4	ug/L
⌈	Fe	54	101816.096	2.790	0.345	169.149	1.7	ug/L
|	Fe	57	39709.884	1.427	0.151	166.020	1.4	ug/L
⌊ >	Sc-1	45	224091.477	1.682	224091.477			ug/L

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Aluminum			10	0.13	MS
Antimony			0.50	0.034	MS
Arsenic			0.30	0.12	MS
Barium			5.0	0.018	MS
Beryllium			0.20	0.038	MS
Boron			100	0	MS
Cadmium			0.20	0.022	MS
Calcium			200	3.5	MS
Chromium			2.0	0.054	MS
Cobalt			1.0	0.010	MS
Copper			1.0	0.041	MS
Iron			20	1.5	MS
Lead			0.20	0.018	MS
Lithium			50	0	MS
Magnesium			100	35	MS
Manganese			1.0	0.022	MS
Molybdenum			1.0	0.063	MS
Nickel			2.0	0.025	MS
Potassium			100	2.0	MS
Ruthenium			100	0	MS
Selenium			1.0	0.29	MS
Silicon			100	0	MS
Silver			0.30	0.027	MS
Sodium			100	2.9	MS
Strontium			50	0	MS

Comments:

FORM X - IN I]

10
METHOD DETECTION LIMITS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

ICP ID Number: Date: 6/15/2010

Flame AA ID Number: ICPMS3

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL UG/L	MDL UG/L	M
Thallium			0.40	0.021	MS
Tin			50	0.033	MS
Titanium			10	0.072	MS
Vanadium			0.40	0.023	MS
Zinc			10	0.12	MS
Zirconium			10	0	MS

Comments:

FORM X - IN I]

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 1:36:56 P**
Prep End Date: **8/24/2011 9:00:00**

Prep Batch ID: **23333** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23333		Soil			1	0	0	50	50.000	8/23/2011	8/24/2011
MB-23333		Soil			1	0	0	50	50.000	8/23/2011	8/24/2011
1108481-016B	IOA-SO-RIA33-SB10-	Soil			1.51	0	0	50	33.113	8/23/2011	8/24/2011
1108481-016BMS		Soil			1.52	0	0	50	32.895	8/23/2011	8/24/2011
1108481-016BMSD		Soil			1.51	0	0	50	33.113	8/23/2011	8/24/2011
1108481-003C	IOA-SS-EU32-0002	Soil			1.2	0	0	50	41.667	8/23/2011	8/24/2011
1108481-004C	IOA-SS-EU19-0002	Soil			1.44	0	0	50	34.722	8/23/2011	8/24/2011
1108481-005C	IOA-SS-DUP04-08111	Soil			1.35	0	0	50	37.037	8/23/2011	8/24/2011
1108481-007C	IOA-SS-EU12-0002	Soil			1.07	0	0	50	46.729	8/23/2011	8/24/2011
1108481-008B	IOA-SO-RIA82-01A-06	Soil			1.34	0	0	50	37.313	8/23/2011	8/24/2011
1108481-009B	IOA-SO-RIA82-02A-06	Soil			1.64	0	0	50	30.488	8/23/2011	8/24/2011
1108481-010B	IOA-SO-RIA82-03A-06	Soil			1.69	0	0	50	29.586	8/23/2011	8/24/2011
1108481-011B	IOA-SO-RIA82-04A-06	Soil			1.24	0	0	50	40.323	8/23/2011	8/24/2011
1108481-013B	IOA-SO-RIA33-SB04-	Soil			1.18	0	0	50	42.373	8/23/2011	8/24/2011
1108481-014B	IOA-SO-RIA33-SB08-	Soil			1.38	0	0	50	36.232	8/23/2011	8/24/2011
1108481-015B	IOA-SO-DUP05-0815	Soil			1.41	0	0	50	35.461	8/23/2011	8/24/2011
1108481-017B	IOA-SO-RIA33-SB14-	Soil			1.16	0	0	50	43.103	8/23/2011	8/24/2011
1108481-018B	IOA-SO-RIA33-SB02-	Soil			1.22	0	0	50	40.984	8/23/2011	8/24/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Reagent	1079	1:1Nitric Acid	982	Container-1 of 1	0	mL
Chemical	633	Hydrogen Peroxide 30%w/v	2822	Container-1 of 1	0	mL
Chemical	697	nitric acid	3153	Container-6 of 8	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-3A CATIONS 10000UG/ML	Opened	LCS	5272	Container-1 of 1	0.05	mL
AAC-STD-3A CATIONS 10000UG/ML	Opened	MS	5272	Container-1 of 1	0.05	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 1:36:56 P**
Prep End Date: **8/24/2011 9:00:00**

Prep Batch ID: **23333** Prep Code: **SW_3050** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Prep Factor Units: **mL / g**

AAC-STD-3A CATIONS 10000UG/ML	Opened	MSD	5272	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	LCS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MS	5270	Container-1 of 1	0.05	mL
ICPMS AAC-STD-2 1/26/2011	Opened	MSD	5270	Container-1 of 1	0.05	mL

RTI Laboratories

PREP BATCH REPORT

Prep Start Date: **8/23/2011 1:37:59 P**
Prep End Date: **8/23/2011 4:00:00 P**

Prep Factor Units: **mL / g**

Prep Batch ID: **23334** Prep Code: **SW_3050-SA** Technician: **Vivienne Dragescu**

Initial Temp: **98 °C** Final Temp **98 °C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
LCS-23334		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
MB-23334		Soil			1	0	0	50	50.000	8/23/2011	8/23/2011
1108481-016B	IOA-SO-RIA33-SB10-	Soil			1.16	0	0	50	43.103	8/23/2011	8/23/2011
1108481-016BMS		Soil			1.2	0	0	50	41.667	8/23/2011	8/23/2011
1108481-016BMSD		Soil			1.19	0	0	50	42.017	8/23/2011	8/23/2011
1108481-003C	IOA-SS-EU32-0002	Soil			1.16	0	0	50	43.103	8/23/2011	8/23/2011
1108481-004C	IOA-SS-EU19-0002	Soil			1.33	0	0	50	37.594	8/23/2011	8/23/2011
1108481-005C	IOA-SS-DUP04-08111	Soil			1.71	0	0	50	29.240	8/23/2011	8/23/2011
1108481-007C	IOA-SS-EU12-0002	Soil			1.31	0	0	50	38.168	8/23/2011	8/23/2011
1108481-008B	IOA-SO-RIA82-01A-06	Soil			1.35	0	0	50	37.037	8/23/2011	8/23/2011
1108481-009B	IOA-SO-RIA82-02A-06	Soil			1.41	0	0	50	35.461	8/23/2011	8/23/2011
1108481-010B	IOA-SO-RIA82-03A-06	Soil			1.39	0	0	50	35.971	8/23/2011	8/23/2011
1108481-011B	IOA-SO-RIA82-04A-06	Soil			1.39	0	0	50	35.971	8/23/2011	8/23/2011
1108481-013B	IOA-SO-RIA33-SB04-	Soil			1.22	0	0	50	40.984	8/23/2011	8/23/2011
1108481-014B	IOA-SO-RIA33-SB08-	Soil			1.27	0	0	50	39.370	8/23/2011	8/23/2011
1108481-015B	IOA-SO-DUP05-0815	Soil			1.29	0	0	50	38.760	8/23/2011	8/23/2011
1108481-017B	IOA-SO-RIA33-SB14-	Soil			1.27	0	0	50	39.370	8/23/2011	8/23/2011
1108481-018B	IOA-SO-RIA33-SB02-	Soil			1.15	0	0	50	43.478	8/23/2011	8/23/2011

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit
Chemical	697	nitric acid	3153	Container-6 of 8	0	mL
Chemical	698	Hydrochloric acid	3156	Container-1 of 6	0	mL

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit
AAC-STD-4-1000UG/ML	Opened	LCS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MS	5273	Container-1 of 1	0.05	mL
AAC-STD-4-1000UG/ML	Opened	MSD	5273	Container-1 of 1	0.05	mL

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\090811\
Report Date/Time: Thursday, September 08, 2011 19:20:49

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	Blank	08:15:03 Thu 08-Sep-11	Blank	C:\Elandata\DataSet\090811\Blank.001	
	Standard 1	08:17:00 Thu 08-Sep-11	Standard #1	C:\Elandata\DataSet\090811\Standard 1.002	
SW_6020S,IC	ICV-01	08:18:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICV-01.003	
SW_6020S,IC	ICB-01	08:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICB-01.004	
SW_6020S,CF	CRQL-6A	08:25:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-6A.005	
SW_6020S,IC	ICSA	08:28:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSA.006	
SW_6020S,IC	ICSAB	08:45:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSAB.007	
SW_6020S,CC	CCV	08:54:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV .008	
SW_6020S,CC	CCB	08:57:28 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB .009	
SW_6020S,MB	MB-23520	09:11:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.010	
SW_6020S,LC	LCS-23520	09:12:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,MS	1108630-004AM	09:16:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	!
SW_6020S,MS	1108630-004AM	09:19:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	13
SW_6020S,SA	1108630-004A	09:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SD	1108630-004AS	09:25:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X100	
SW_6020S,CC	CCV-01	09:30:55 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-01.016	
SW_6020S,CC	CCB-01	09:34:39 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-01.017	
SW_6020S,CF	CRQL-01	09:57:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01.018	
SW_6020S,CF	CRQL-01-1	10:02:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01-1.019	
SW_6020S,MB	MB-23333	10:10:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.020	
SW_6020S,LC	LCS-23333	10:13:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,MS	1108481-016BM	10:17:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	!
SW_6020S,MS	1108481-016BM	10:20:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	23
SW_6020S,SA	1108481-016B	10:23:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-003C	10:25:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-004C	10:26:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-005C	10:28:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-007C	10:30:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,CC	CCV-02	10:31:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-02.029	
SW_6020S,CC	CCB-02	10:34:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-02.030	
SW_6020S,SA	1108481-008B	10:38:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-009B	10:40:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-010B	10:41:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-011B	10:43:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-013B	10:44:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-014B	10:46:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-015B	10:48:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-017B	10:49:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,SA	1108481-018B	10:53:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090&X20	
SW_6020S,CC	CCV-03	10:58:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-03.040	
SW_6020S,CC	CCB-03	11:01:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-03.041	
SW_6020S,CF	CRQL-03	11:03:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03.042	
SW_6020S,CF	CRQL-03-3	11:08:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03-3.043	
SW_6020S,SA	CHK.STD	11:10:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.044	

SW_6020S,CCCCV-04	11:21:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-04.045	
SW_6020S,CCCCB-04	11:22:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-04.046	
SW_6020S,MBMB-23520	11:23:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.047	
SW_6020S,LCLCS-23520	11:24:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,MS1108630-004AM	11:26:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	)
SW_6020S,MS1108630-004AM	11:28:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	50
SW_6020S,SA1108630-004A	11:29:59 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SD1108630-004AS	11:35:05 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX100	
SW_6020S,CCCCV-05	11:40:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-05.053	
SW_6020S,CCCCB-05	11:44:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-05.054	
SW_6020S,CFCRQL-05	11:45:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-05.055	
SW_6020S,MBMB-23333	11:50:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.056	
SW_6020S,LCLCS-23333	11:54:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,MS1108481-016BM	11:55:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	)
SW_6020S,MS1108481-016BM	11:57:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	59
SW_6020S,SA1108481-016B	11:59:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-003C	12:01:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-004C	12:01:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-005C	12:02:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-007C	12:03:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SD1108481-016BS	12:09:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX50	
SW_6020S,CCCCV-06	12:16:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-06.066	
SW_6020S,CCCCB-06	12:22:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-06.067	
SW_6020S,SA1108481-008B	12:22:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-009B	12:23:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-010B	12:24:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-011B	12:25:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-013B	12:26:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-014B	12:27:08 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-015B	12:27:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-017B	12:28:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA1108481-018B	12:29:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,CCCCV-07	12:31:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-03.077	
SW_6020S,CCCCB-07	12:33:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-03.078	
SW_6020S,CFCRQL-07	12:34:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03.079	
SW_6020S,SACHK.STD	12:45:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.080	
SW_6020S,CCCCV-08	12:55:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-08.081	
SW_6020S,CCCCB-08	13:00:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-08.082	
SW_6020S,MBMB-23520	13:01:04 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.083	
SW_6020S,LCLCS-23520	13:11:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,MS1108630-004AM	13:12:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	)
SW_6020S,MS1108630-004AM	13:13:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	36
SW_6020S,SA1108630-004A	13:15:14 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	
SW_6020S,SD1108630-004AS	13:18:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX2000	
SW_6020S,CCCCV-09	13:19:38 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-09.089	
SW_6020S,CFCRQL-09	13:23:56 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-09.090	
SW_6020S,CCCCB-09	13:25:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-09.091	
SW_6020S,MBMB-23333	13:28:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.092	
SW_6020S,LCLCS-23333	13:29:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,MS1108481-016BM	13:31:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	)
SW_6020S,MS1108481-016BM	13:34:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	35
SW_6020S,SA1108481-016B	13:40:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	
SW_6020S,SD1108481-016BS	13:47:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX2000	
SW_6020S,SA1108481-003C	13:53:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	
SW_6020S,SA1108481-004C	13:54:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	
SW_6020S,SA1108481-005C	13:55:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX400	

SW_6020S,SA1108481-007C	13:56:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,CCCCV-10	13:59:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-10.102
SW_6020S,CCCCB-10	14:00:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-10.103
SW_6020S,SA1108481-008B	14:02:01 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-009B	14:02:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-010B	14:03:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-011B	14:04:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-013B	14:05:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-014B	14:06:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-015B	14:07:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-017B	14:07:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,SA1108481-018B	14:08:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\X400
SW_6020S,CCCCV-11	14:10:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-11.113
SW_6020S,CCCCB-11	14:15:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-11.114
SW_6020S,CFCRQL-11	14:18:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-11.115
SW_6020S,SACHK.STD	14:25:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.116
EPA_200.8,CCCCV-12	14:40:44 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-12.117
EPA_200.8,CCCCB-12	14:43:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-12.118
EPA_200.8-HAMB-23395	14:44:40 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23395.119
EPA_200.8-HALCS-23395	14:45:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8-HA1108966-002AM	14:46:25 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8-HA1108966-002AM	14:48:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8-HA1108966-002A	14:49:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8-HA1108A09-001C	14:50:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,CCCCV-13	14:59:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-13.125
EPA_200.8,CCCCB-13	15:03:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-13.126
EPA_200.8,CFCRQL-13	15:04:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-13.127
EPA_200.8,MBMB-23408	15:10:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23408.128
EPA_200.8,SA1108A61-004C	15:11:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SD1108A61-004CS	15:12:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X100
EPA_200.8,SA1108A61-001C	15:14:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-002C	15:14:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-003C	15:15:39 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-005C	15:16:24 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-006C	15:17:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-007C	15:17:55 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1108A61-008C	15:18:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,CCCCV-14	15:19:27 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-14.138
EPA_200.8,CCCCB-14	15:21:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-14.139
EPA_200.8,CFCRQL-14	15:22:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-14.140
EPA_200.8,CCCCV-15	15:30:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-15.141
EPA_200.8,CCCCB-15	15:32:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-15.142
EPA_200.8,MBMB-23526	15:33:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23526.143
EPA_200.8,LCLCS-23526	15:42:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,MS1109149-001BM	15:45:53 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,MS1109149-001BM	15:47:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,MS1109039-003CM	15:48:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X20
EPA_200.8,SA1109149-001B	15:52:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5
EPA_200.8,SA1109039-003C	15:53:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5
EPA_200.8,SA1109033-002A	15:55:38 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5
EPA_200.8,SA1109033-004A	15:57:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5
EPA_200.8,SA1109039-001D	15:58:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5
EPA_200.8,CCCCV-16	16:00:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-16.153
EPA_200.8,CCCCB-16	16:03:08 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-16.154
EPA_200.8,CFCRQL-16	16:04:51 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-16.155
EPA_200.8,SA1109149-002C	16:08:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090X5

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108481

Lab Code: GLEN01

Method: MS (Total)

Instrument ID Number: ICPMS3

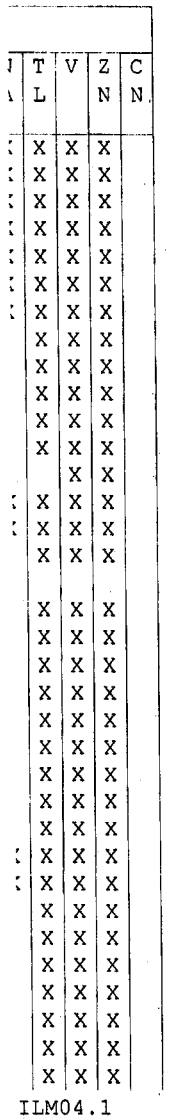
Test Code: SW 6020S

Start Date: 09/08/2011

End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	A
ZZZZZZ ICV	1.00	0818		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV/ICB	1.00	0822		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0825		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
ZZZZZZ	1.00	0828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0845		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0854		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
ZZZZZZ	1.00	0857		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
PBS	1.00	0911				X	X	X	X		X	X	X		X				X		X		
LCSS	20.00	0912				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ	20.00	0916				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ	20.00	0919				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ	20.00	0922			X	X	X	X	X		X	X	X		X				X		X	X	
ZZZZZZ	100.00	0925					X				X	X			X				X		X		
ZZZZZZ CCV	1.00	0930		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	0934		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0957					X	X	X		X	X	X		X				X		X		
ZZZZZZ	1.00	1002				X																	
PBS	1.00	1010				X	X	X	X		X	X	X		X				X		X		
LCSS	20.00	1013				X	X	X	X		X	X	X		X				X		X		
SB10-0305S	20.00	1017				X	X	X	X		X	X	X		X				X		X		
B10-0305SD	20.00	1020				X	X	X	X		X	X	X		X				X		X		
-SB10-0305	20.00	1023				X	X	X	X		X	X	X		X				X		X		
-EU32-0002	20.00	1025				X	X	X	X		X	X	X		X				X		X		
-EU19-0002	20.00	1026				X	X	X	X		X	X	X		X				X		X		
P04-081111	20.00	1028				X	X	X	X		X	X	X		X				X		X		
-EU12-0002	20.00	1030				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ CCV	1.00	1031		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1034		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
2-01A-0608	20.00	1038				X	X	X	X		X	X	X		X				X		X		
2-02A-0608	20.00	1040				X	X	X	X		X	X	X		X				X		X		
2-03A-0608	20.00	1041				X	X	X	X		X	X	X		X				X		X		
2-04A-0608	20.00	1043				X	X	X	X		X	X	X		X				X		X		
-SB04-0305	20.00	1044				X	X	X	X		X	X	X		X				X		X		
-SB08-0305	20.00	1046				X	X	X	X		X	X	X		X				X		X		
P05-081511	20.00	1048				X	X	X	X		X	X	X		X				X		X		

FORM XIV - IN



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:	X	X	X	
:	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
	X	X	X	
		X	X	
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ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories Workorder No.: 1108481

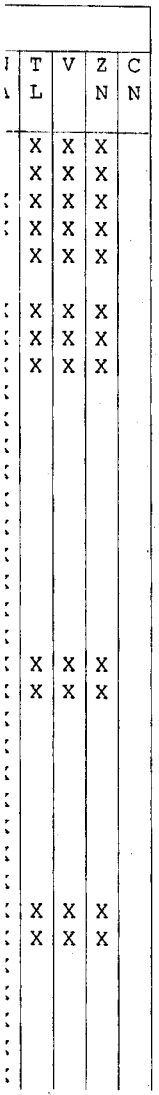
Lab Code: GLEN01 Method: MS (Total)

Instrument ID Number: ICPMS3 Test Code: SW 6020S

Start Date: 09/08/2011 End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
-SB14-0507	20.00	1049				X	X	X	X		X	X	X		X				X		X		
-SB02-0507	20.00	1053				X	X	X	X		X	X	X		X				X		X		
ZZZZZZ CCV	1.00	1058		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1101		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1103					X	X	X		X	X	X		X				X		X		
ZZZZZZ	1.00	1108				X																	
ZZZZZZ	1.00	1110		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1121		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1122		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1123								X						X				X			X
LCSS	20.00	1124								X						X				X			X
ZZZZZZ	20.00	1126								X						X				X			X
ZZZZZZ	20.00	1128								X						X				X			X
ZZZZZZ	20.00	1129								X						X				X			X
ZZZZZZ	100.00	1135								X						X				X			X
ZZZZZZ CCV	1.00	1140								X						X				X			X
ZZZZZZ CCB	1.00	1144								X						X				X			X
ZZZZZZ	1.00	1145								X						X				X			X
PBS	1.00	1150								X						X				X			X
LCSS	20.00	1154		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
SB10-0305S	20.00	1155		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
B10-0305SD	20.00	1157								X						X				X			X
-SB10-0305	20.00	1159								X						X				X			X
-EU32-0002	20.00	1201								X						X				X			X
-EU19-0002	20.00	1201								X						X				X			X
P04-081111	20.00	1202								X						X				X			X
-EU12-0002	20.00	1203								X						X				X			X
SB10-0305L	50.00	1209								X						X				X			X
ZZZZZZ CCV	1.00	1216		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1222		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
2-01A-0608	20.00	1222								X						X				X			X
2-02A-0608	20.00	1223								X						X				X			X
2-03A-0608	20.00	1224								X						X				X			X
2-04A-0608	20.00	1225								X						X				X			X
-SB04-0305	20.00	1226								X						X				X			X

FORM XIV - IN



ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories Workorder No.: 1108481

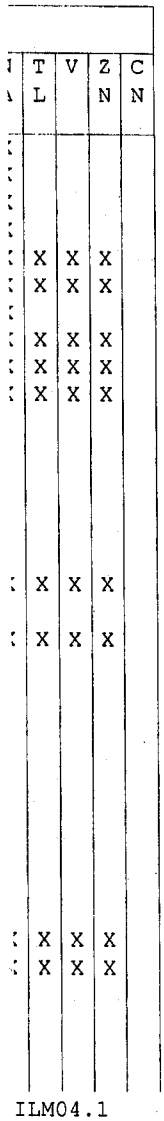
Lab Code: GLEN01 Method: MS (Total)

Instrument ID Number: ICPMS3 Test Code: SW 6020S

Start Date: 09/08/2011 End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	A
-SB08-0305	20.00	1227								X						X				X			X
P05-081511	20.00	1227								X						X				X			X
-SB14-0507	20.00	1228								X						X				X			X
-SB02-0507	20.00	1229								X						X				X			X
ZZZZZZ CCV	1.00	1231		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1233		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1234								X						X				X			X
ZZZZZZ	1.00	1245		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCV	1.00	1255		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1300		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1301		X										X			X						
LCSS	20.00	1311		X										X			X						
ZZZZZZ	400.00	1312		X										X			X						
ZZZZZZ	400.00	1313		X										X			X						
ZZZZZZ	400.00	1315		X										X			X						
ZZZZZZ	2000.00	1318		X										X			X						
ZZZZZZ CCV	1.00	1319		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1323		X										X			X						
ZZZZZZ CCB	1.00	1325		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PBS	1.00	1328		X										X			X						
LCSS	20.00	1329		X										X			X						
SB10-0305S	400.00	1331		X										X			X						
B10-0305SD	400.00	1334		X										X			X						
-SB10-0305	400.00	1340		X										X			X						
SB10-0305L	2000.00	1347		X										X			X						
-EU32-0002	400.00	1353		X										X			X						
-EU19-0002	400.00	1354		X										X			X						
P04-081111	400.00	1355		X										X			X						
-EU12-0002	400.00	1356		X										X			X						
ZZZZZZ CCV	1.00	1359		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1400		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
2-01A-0608	400.00	1402		X										X			X						
2-02A-0608	400.00	1402		X										X			X						
2-03A-0608	400.00	1403		X										X			X						
2-04A-0608	400.00	1404		X										X			X						

FORM XIV - IN



ILM04.1

14
ANALYSIS RUN LOG

Lab Name: RTI Laboratories | Workorder No.: 1108481

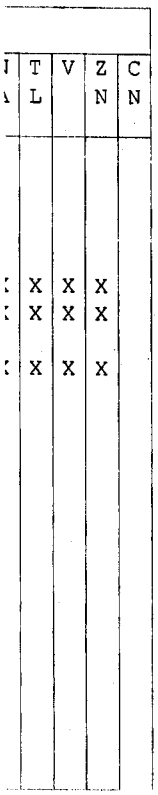
Lab Code: GLEN01 | Method: MS (Total)

Instrument ID Number: ICPMS3 | Test Code: SW 6020S

Start Date: 09/08/2011 | End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
-SB04-0305	400.00	1405		X										X			X						
-SB08-0305	400.00	1406		X										X			X						
P05-081511	400.00	1407		X										X			X						
-SB14-0507	400.00	1407		X										X			X						
-SB02-0507	400.00	1408		X										X			X						
ZZZZZZ CCV	1.00	1410		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ CCB	1.00	1415		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1418		X										X			X						
ZZZZZZ	1.00	1425		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1706																					
ZZZZZZ	1.00	1708																					
ZZZZZZ	1.00	1709																					
ZZZZZZ	1.00	1710																					
ZZZZZZ	1.00	1711																					
ZZZZZZ	1.00	1711																					
ZZZZZZ	1.00	1713																					
PBS	1.00	1716																					
LCSS	20.00	1717																					
ZZZZZZ	20.00	1717																					
ZZZZZZ	20.00	1718																					
ZZZZZZ	20.00	1723																					
ZZZZZZ	1.00	1725																					
ZZZZZZ	1.00	1728																					
ZZZZZZ	1.00	1729																					

FORM XIV - IN



ILM04.1

Dataset Report

User Name: avikdorchik
Computer Name: WS158
Dataset File Path: C:\Elandata\DataSet\090811\
Report Date/Time: Thursday, September 08, 2011 19:20:49

The Dataset

Batch ID	Sample ID	Date and Time	Read Type	Samp. File Name	Description
	Blank	08:15:03 Thu 08-Sep-11	Blank	C:\Elandata\DataSet\090811\Blank.001	
	Standard 1	08:17:00 Thu 08-Sep-11	Standard #1	C:\Elandata\DataSet\090811\Standard 1.002	
SW_6020S,IC	ICV-01	08:18:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICV-01.003	
SW_6020S,IC	ICB-01	08:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICB-01.004	
SW_6020S,CF	CRQL-6A	08:25:30 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-6A.005	
SW_6020S,IC	ICSA	08:28:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSA.006	
SW_6020S,IC	ICSAB	08:45:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\ICSAB.007	
SW_6020S,C	CCV	08:54:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV .008	
SW_6020S,C	CCB	08:57:28 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB .009	
SW_6020S,M	MB-23520	09:11:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23520.010	
SW_6020S,L	CLCS-23520	09:12:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,M	1108630-004AM	09:16:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,M	1108630-004AM	09:19:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108630-004A	09:22:12 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SD	1108630-004AS	09:25:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX100	
SW_6020S,C	CCV-01	09:30:55 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-01.016	
SW_6020S,C	CCB-01	09:34:39 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-01.017	
SW_6020S,CF	CRQL-01	09:57:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01.018	
SW_6020S,CF	CRQL-01-1	10:02:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-01-1.019	
SW_6020S,M	MB-23333	10:10:52 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23333.020	
SW_6020S,L	CLCS-23333	10:13:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,M	1108481-016BM	10:17:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,M	1108481-016BM	10:20:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-016B	10:23:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-003C	10:25:13 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-004C	10:26:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-005C	10:28:26 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-007C	10:30:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,C	CCV-02	10:31:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-02.029	
SW_6020S,C	CCB-02	10:34:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-02.030	
SW_6020S,SA	1108481-008B	10:38:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-009B	10:40:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-010B	10:41:47 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-011B	10:43:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-013B	10:44:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-014B	10:46:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-015B	10:48:10 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-017B	10:49:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,SA	1108481-018B	10:53:45 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S,C	CCV-03	10:58:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-03.040	
SW_6020S,C	CCB-03	11:01:23 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-03.041	
SW_6020S,CF	CRQL-03	11:03:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03.042	
SW_6020S,CF	CRQL-03-3	11:08:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-03-3.043	
SW_6020S,SA	CHK.STD	11:10:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CHK.STD.044	

SW_6020S-SA1108447-005CM	17:55:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
SW_6020S-SA1108447-005CM	17:56:42 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	14
SW_6020S-SA1108447-005C	18:00:03 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-001C	18:00:50 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-002C	18:01:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-003C	18:02:24 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-004C	18:03:11 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-006C	18:03:58 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-22	18:04:46 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-22.221	
SW_6020S-SACCB-22	18:08:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-22.222	
SW_6020S-SA1108447-007C	18:09:28 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-008C	18:10:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-009C	18:11:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-010C	18:11:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-011C	18:12:34 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-012C	18:13:21 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-013C	18:14:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108447-014C	18:14:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-23	18:15:41 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-23.231	
SW_6020S-SACCB-23	18:18:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-23.232	
SW_6020S-SACRQL-23	18:19:36 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-23.233	
SW_6020S-SAMB-23334	18:22:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23334.234	
SW_6020S-SALCS-23334	18:23:25 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
SW_6020S-SA1108481-016BM	18:26:54 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
SW_6020S-SA1108481-016BM	18:28:07 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	37
SW_6020S-SA1108481-016B	18:30:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-003C	18:31:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-004C	18:32:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-005C	18:33:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-007C	18:33:56 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-008B	18:34:44 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-24	18:35:31 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-24.244	
SW_6020S-SACCB-24	18:39:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-24.245	
SW_6020S-SA1108481-009B	18:40:09 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-010B	18:40:57 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-011B	18:41:43 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-013B	18:42:29 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-014B	18:43:15 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-015B	18:44:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-017B	18:44:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SA1108481-018B	18:45:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX10	
SW_6020S-SACCV-25	18:46:22 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-25.254	
SW_6020S-SACCB-25	18:49:49 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-25.255	
SW_6020S-SACRQL-25	18:50:37 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CRQL-25.256	
EPA_200.8-SAMB-23496	18:53:16 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\MB-23496.257	
EPA_200.8-SALCS-23496	18:54:00 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	
EPA_200.8-SA1108B67-002AM	18:56:35 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	3
EPA_200.8-SA1108B67-002AM	18:57:19 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX20	30
EPA_200.8-SA1108B67-002A	18:59:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B67-004A	19:00:32 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B68-002A	19:01:17 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B68-004A	19:02:02 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1108B86-002A	19:02:48 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SA1109039-001D	19:03:33 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090EX5	
EPA_200.8-SACCV-26	19:04:18 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCV-26.267	
EPA_200.8-SACCB-26	19:06:20 Thu 08-Sep-11	Sample	C:\Elandata\DataSet\090811\CCB-26.268	

ANALYSIS RUN LOG

Lab Name: RTI Laboratories Workorder No.: 1108481

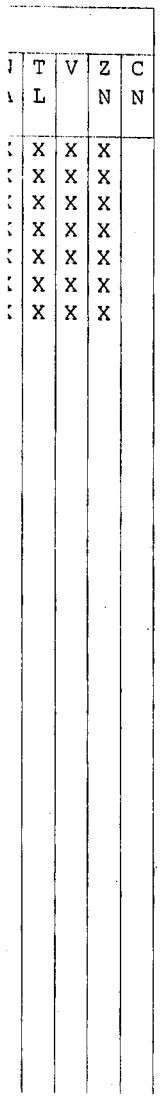
Lab Code: GLEN01 Method: MS (Total)

Instrument ID Number: ICPMS3 Test Code: SW 6020S-SA

Start Date: 09/08/2011 End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																			
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
ZZZZZZ	1.00	0818		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0822		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0825		X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
ZZZZZZ	1.00	0828		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0845		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0854		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	0857		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
ZZZZZZ	1.00	1738			X																	X	
ZZZZZZ	1.00	1743			X																	X	
ZZZZZZ	1.00	1745			X																	X	
ZZZZZZ	1.00	1746			X																	X	
ZZZZZZ	1.00	1747			X																	X	
ZZZZZZ	1.00	1748			X																	X	
ZZZZZZ	1.00	1751			X																	X	
PBS	1.00	1752			X																	X	
LCSS	20.00	1753			X																	X	
ZZZZZZ	20.00	1755			X																	X	
ZZZZZZ	20.00	1756			X																	X	
ZZZZZZ	10.00	1800			X																	X	
ZZZZZZ	10.00	1800			X																	X	
ZZZZZZ	10.00	1801			X																	X	
ZZZZZZ	10.00	1802			X																	X	
ZZZZZZ	10.00	1803			X																	X	
ZZZZZZ	10.00	1803			X																	X	
ZZZZZZ	1.00	1804			X																	X	
ZZZZZZ	1.00	1808			X																	X	
ZZZZZZ	10.00	1809			X																	X	
ZZZZZZ	10.00	1810			X																	X	
ZZZZZZ	10.00	1811			X																	X	
ZZZZZZ	10.00	1811			X																	X	
ZZZZZZ	10.00	1812			X																	X	
ZZZZZZ	10.00	1813			X																	X	
ZZZZZZ	10.00	1814			X																	X	
ZZZZZZ	10.00	1814			X																	X	
ZZZZZZ CCV	1.00	1815			X																	X	

FORM XIV - IN



ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories
Workorder No.: 1108481

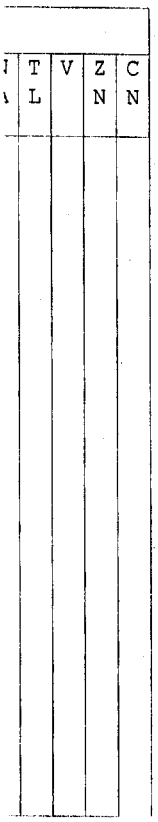
Lab Code: GLEN01
Method: MS (Total)

Instrument ID Number: ICPMS3
Test Code: SW 6020S-SA

Start Date: 09/08/2011
End Date: 09/08/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N A
ZZZZZZ ICB	1.00	1818			X																X	
ZZZZZZ	1.00	1819			X																X	
PBS	1.00	1822			X																X	
LCSS	20.00	1823			X																X	
SB10-0305S	20.00	1826			X																X	
B10-0305SD	20.00	1828			X																X	
-SB10-0305	10.00	1830			X																X	
-EU32-0002	10.00	1831			X																X	
-EU19-0002	10.00	1832			X																X	
P04-081111	10.00	1833			X																X	
-EU12-0002	10.00	1833			X																X	
2-01A-0608	10.00	1834			X																X	
ZZZZZZ CCV	1.00	1835			X																X	
ZZZZZZ CCB	1.00	1839			X																X	
2-02A-0608	10.00	1840			X																X	
2-03A-0608	10.00	1840			X																X	
2-04A-0608	10.00	1841			X																X	
-SB04-0305	10.00	1842			X																X	
-SB08-0305	10.00	1843			X																X	
P05-081511	10.00	1844			X																X	
-SB14-0507	10.00	1844			X																X	
-SB02-0507	10.00	1845			X																X	
ZZZZZZ CCV	1.00	1846			X																X	
ZZZZZZ CCB	1.00	1849			X																X	
ZZZZZZ	1.00	1850			X																X	

FORM XIV - IN



ILM04.1

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

QC SUMMARY REPORT

WO#: **1108481**
18-Nov-11

Client: Tetra Tech NUS, Inc.
Project: Industrial Operations Area-CTO WE11/112G02 **TestCode:** **SW_7471S**

Sample ID: **CCV1**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821301**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	95.4	90	110				

Sample ID: **CCV2**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821314**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	94.2	90	110				

Sample ID: **CCV3**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821326**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	95.9	90	110				

Sample ID: **CCV4**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821338**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.9	30	2.000	0	97.0	90	110				

Sample ID: **CCV5**	SampType: **CCV**	TestCode: **SW_7471S**	Units: **µg/Kg**	Prep Date:			RunNo: **42418**		
Client ID: **CCV**	Batch ID: **R42418**	TestNo: **SW7471A**		Analysis Date: **8/24/2011**			SeqNo: **821350**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.0	30	2.000	0	102	90	110				

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated concentration	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits

Original

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108

AA CRDL Standard Source:

ICP CRDL Standard Source:

Concentration Units: ug/L

Analyte	CRDL Standard for ICP/MS			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.0	0.00	98.0					
Mercury	0.0	0.00	98.0					

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23336 Prepa-ration Blank	C
Mercury			0.00070	U	0.00070	U	0.00070	U		

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23336 Prepa-ration Blank	C
Mercury			0.00070	U	0.00070	U	0.00070	U		

FORM III - IN

3
BLANKS

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (mg/L)	C	RunNo: 42418 Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	MB-23336 Prepa-ration Blank	C
Mercury	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.036	U

FORM III - IN

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SO-RIA33-SB08-0305SD

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 97.8

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0518		0.0020	J	0.05	99.1		AV

Comments:

FORM V (Part 1) - IN ILM04.1

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMP ID: IOA-SO-RIA33-SB08-0305S

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Workorder No.: 1108481

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 97.8

Concentration Units (mg/L or mg/kg): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	80-120	0.0517		0.0020	J	0.05	97.3		AV

Comments:

5C

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No.: SAS No.: SDG No.: 1108481

Matrix Spike - Client SampID IOA-SO-RIA33-SB08- Level:(low/med) LOW

COMPOUND	SPIKE ADDED MG/KG	MSD CONCENTRATION MG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Mercury	0.05027	0.05183	99.1	0.207	20	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: out of 0 outside limits

Spike Recovery: out of 0 outside limits

COMMENTS:

FORM V

7

LABORATORY CONTROL SAMPLE

Lab Name: RTI Laboratories Contract:

Lab Code: GLEN01 Case No. SAS No.: SDG No.: 1108481

Solid LCS Source:

Aqueous LCS Source:

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	%R
Mercury				0.1	0.1		97.1

LCS Control Limits:

All 6000 and 7000 Series Methods 80-120

All 200 Series Methods 85-115

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108481

Lab Code: GLEN01

Method: AV (Total)

Instrument ID Number: HG2

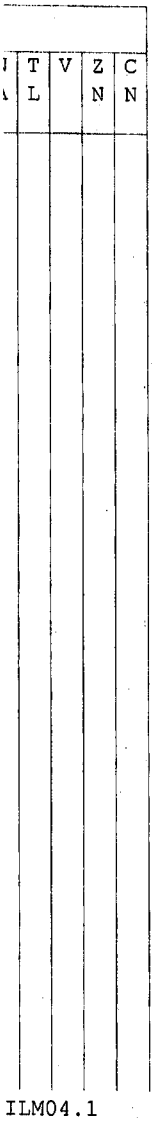
Test Code: SW 7471S

Start Date: 08/24/2011

End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
ZZZZZZ	1.00	1326																X					
ZZZZZZ	1.00	1327																X					
ZZZZZZ	1.00	1328																X					
PBS	1.00	1330																X					
LCSS	1.00	1331																X					
ZZZZZZ	1.00	1333																X					
ZZZZZZ	1.00	1334																X					
ZZZZZZ	1.00	1336																X					
ZZZZZZ	1.00	1337																X					
ZZZZZZ	1.00	1339																X					
ZZZZZZ	1.00	1340																X					
ZZZZZZ	1.00	1342																X					
ZZZZZZ	1.00	1343																X					
ZZZZZZ	1.00	1345																X					
ZZZZZZ	1.00	1346																X					
ZZZZZZ	1.00	1348																X					
ZZZZZZ	1.00	1349																X					
ZZZZZZ	1.00	1350																X					
ZZZZZZ	1.00	1352																X					
ZZZZZZ	1.00	1353																X					
ZZZZZZ	1.00	1355																X					
ZZZZZZ	1.00	1356																X					
ZZZZZZ	1.00	1358																X					
ZZZZZZ	1.00	1359																X					
ZZZZZZ	1.00	1401																X					
ZZZZZZ	1.00	1402																X					
ZZZZZZ	1.00	1404																X					
PBS	1.00	1428																X					
LCSS	1.00	1430																X					
-SB10-0305	1.00	1431																X					
SB10-0305S	1.00	1433																X					
B10-0305SD	1.00	1434																X					
-EU32-0002	1.00	1436																X					
-EU19-0002	1.00	1437																X					
P04-081111	1.00	1439																X					

FORM XIV - IN



ILM04.1

ANALYSIS RUN LOG

Lab Name: RTI Laboratories

Workorder No.: 1108481

Lab Code: GLEN01

Method: AV (Total)

Instrument ID Number: HG2

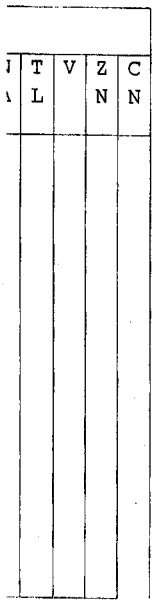
Test Code: SW 7471S

Start Date: 08/24/2011

End Date: 08/24/2011

EPA Sample No.	D/F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CO	CR	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	N
-EU12-0002	1.00	1440																X					
2-01A-0608	1.00	1441																X					
ZZZZZZ	1.00	1443																X					
ZZZZZZ	1.00	1444																X					
2-02A-0608	1.00	1446																X					
2-03A-0608	1.00	1447																X					
2-04A-0608	1.00	1449																X					
-SB04-0305	1.00	1450																X					
-SB08-0305	1.00	1452																X					
SB08-0305S	1.00	1453																X					
B08-0305SD	1.00	1455																X					
P05-081511	1.00	1456																X					
-SB14-0507	1.00	1458																X					
-SB02-0507	1.00	1459																X					
ZZZZZZ	1.00	1501																X					
ZZZZZZ	1.00	1502																X					
ZZZZZZ	1.00	1505																X					

FORM XIV - IN



ILM04.1

TETRA TECH, INC **INTERNAL CORRESPONDENCE**

C-NAVY-02-12-4975W

Date: January 7, 2012 c: File G02073-4.10

To: Phoebe Call

From: Paula DiMattei (no copy)

Subject: Analytical Data Usability Assessment SDG 1108481
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

Samples: 16/ Soil: Metals

IOA-SS-DUP04-081111[1]	IOA-SS-DUP05-081511[2]	IOA-SO-RIA33-SB02-0507
IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305
IOA-SO-RIA33-SB14-0507	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608
IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608	IOA-SS-EU12-0002
IOA-SS-EU19-0002	IOA-SS-EU21-0002	IOA-SS-EU22-0002
IOA-SS-EU32-0002		

[1]Field duplicate of IOA-SS-EU32-0002
[2]Field duplicate of IOA-SO-RIA33-SB14-0507

Analytical Data Usability Assessment

The analytical data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and laboratory data completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

Metals

The project goals with respect to accuracy were met for the metals data set with the following exceptions. Manganese was qualified as estimated in all samples due to the low matrix spike recovery; results may be biased low. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

Potassium was qualified as estimated in all samples due to the high matrix spike recovery; results may be biased high. The data usability is not impacted since there is no project screening limit established for this analyte. Although specific method criteria were not met in these instances, data usability is not impacted and the affected results are usable as estimated values.

The project screening limits were evaluated for non-detected results only [reported at the limit of detection (LOD)] with respect to the project sensitivity goals. The LOD for thallium in select samples did not meet the project screening limit. Data usability may be impacted for thallium with respect to sensitivity. The LODs for antimony, beryllium, cadmium, and selenium in select samples were elevated as a result of the presence of laboratory blank contamination. Although elevated, the LODs for these analytes still met the project screening limits; thus, the data usability is not impacted for antimony, beryllium, cadmium, and selenium.

The project goals with respect to precision and laboratory data completeness were met for the metals data set. Data usability was not impacted with regards to precision and laboratory data completeness.

TETRA TECH NUS, INC **INTERNAL CORRESPONDENCE**

C-NAVY-03-11-4377W

Date: September 22, 2011 c: File G02073-4.10 (w/enc.-original)

To: Phoebe Call (w/o enc.)

From: Paula DiMattei (no copy)

Subject: Tier II PCDD/PCDF Data Validation, SDG 31102123
SGS North America, Inc.
CTO WE11, Industrial Operations Area, NAS South Weymouth, Weymouth, MA

PCDD/PCDF:

14/Soils/	IOA-SS-DUP01-080911	IOA-SS-DUP02-081011
	IOA-SS-EU07-0002	IOA-SS-EU09-0002
	IOA-SS-EU13-0002	IOA-SS-EU15-0002
	IOA-SS-EU27-0002	IOA-SS-EU28-0002
	IOA-SS-EU36-0002	IOA-SS-EU37-0002
	IOA-SS-EU38-0002	IOA-SS-EU39-0002
	IOS-SS-EU43-0002	IOA-SS-EU46-0002

(Field Duplicates: IOA-SS-EU15-0002/IOA-SS-DUP01-080911; and
IOA-SS-EU46-0002/IOA-SS-DUP02-081011)

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (PCDD/PCDF) analytical data for the soil samples in this SDG. The samples were collected at the Industrial Operations Area site at NAS South Weymouth in Weymouth, Massachusetts on August 9-10, 2011. Sample collection and analysis were performed according to the requirements of the Site Investigation Sampling and Analysis Plan, Industrial Operations Area, dated August 2011.

The PDCC/PCDF analysis was performed according to USEPA SW-846 Method 8290A. The PCDD/PCDF data validation was performed in accordance with the USEPA National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, September, 2005.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed. The units in the summary data tables are ng/kg which are equivalent to picogram per gram (pg/g)

The data were evaluated based on the following parameters:

* • Laboratory Data Completeness
* • Preservation and Technical Holding Times
* • Window Defining Mixture Performance
* • Initial and Continuing Calibrations
• Blanks
* • Matrix Spike/Matrix Spike Duplicate

* • Ongoing Precision and Recovery (OPR)
* • Labeled Compound Recoveries
• Field Duplicates
• Target Compound Identification
* • Percent solids
* • Limits of Detection

* All criteria were met for this parameter.

Blanks

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Compound	Maximum Concentration (pg/g)	Action	Affected samples
2,3,7,8-TCDF	0.156	U	IOA-SS-DUP01-080911, IOA-SS-DUP02-081011, IOA-SS-EU07-0002, IOA- IOA-SS-EU15-0002, IOA-SS-EU28-0002, IOA-SS-EU36-0002, IOA-SS-EU37-0002, IOA-SS-EU38-0002, IOA-SS-EU46-0002
		J	SS-EU09-0002, IOA-SS-EU27-0002, IOA-SS-EU39-0002,
Total TCDF	0.156	J	IOA-SS-EU38-0002

Blank actions were applied to the affected soil samples due to method blank contamination. The positive results in the affected samples were qualified as not detected at the reported concentration (U) if the sample concentration was < the LOQ for the affected compound. In cases where the reported result was identified as an EMPC, the "J" qualifier indicative of the uncertainty in the qualitative identification of this result was retained for an overall qualification of "UJ".

The positive results in the affected samples were qualified as estimated (J) with a high bias if the sample concentration was ≥ LOQ.

Although 2,3,7,8-TCDF contamination was detected in the laboratory method blank; project sensitivity goals are not impacted since the project screening limits were still met by the elevated detection limits. Additionally, the concentration of 2,3,7,8-TCDF that was detected in the affected samples and considered to be biased high as a result of blank contamination was still below the PSL (45 pg/g). The results in the affected samples are usable as non-detected or biased high values.

There are no project screening levels for homologues; thus, the project sensitivity goals are not impacted as a result of the blank contamination attributed to total TCDF for sample IOA-SS-EU38-0002.

Field Duplicates

The target compounds in the field duplicate samples IOA-SS-EU15-0002 and IOA-SS-DUP01-080911 which exceeded the relative percent difference (RPD) QC criterion of 50% are summarized below:

Compound	Sample Result (pg/g)	Duplicate Result (pg/g)	RPD	Action	
				(+)	NDs
OCDF	38.5	21.9	55	J	
Total TCDD	2.59	0.877	99	J	

Although the RPD was outside of the QC limits for OCDF and the total TCDD results in these samples; the project precision goals are not impacted since the samples results are several orders of magnitude below the PSL for the affected compound. The positive OCDF and total TCDD results in samples IOA-SS-EU15-0002 and IOA-SS-DUP01-080911 are usable as estimated values.

The target compound in the field duplicate samples IOA-SS-EU46-0002 and IOA-SS-DUP02-081011 which exceeded the relative percent difference QC criterion of 50% is summarized below:

Compound	Sample Result (pg/g)	Duplicate Result (pg/g)	RPD	Action	
				(+)	NDs
Total HxCDD	7.67	3.92	65	J	

Although the RPD was outside of the QC limits for the total HxCDD results in these samples; the project precision goals are not impacted since there are no regulatory limits for total HxCDD. The positive total HxCDD results in samples IOA-SS-EU46-0002 and IOA-SS-DUP02-081011 are usable as estimated values.

Target Compound Identification

Several 2378-substituted isomers in many samples were reported as estimated potential maximum concentrations (EMPCs). EMPCs are defined as a detected response with a signal to noise ratio of $\geq$ 2.5 for both quantitation ions and having met all identification criteria with the exception of the ion abundance ratio. These EMPC results were qualified as estimated (J).

If the EMPCs were included in the calculation of homologue concentration results, these results were qualified as estimated (J) when at least one constituent of the homologue concentration was determined to be an EMPC.

The 2,3,7,8-TCDF confirmation results are reported in the data summary tables since 2,3,7,8-TCDF coelute with other TCDF isomers in the primary column.

Limits of Detection

The non-detected results were reported at the laboratory's limits of detection (LOD) with the following exceptions. The non-detected results for 2,3,7,8-TCDD and/or the total TCDD in samples IOA-SS-EU13-0002, IOA-SS-EU28-0002, and IOA-SS-EU43-0002 were reported at the sample specific estimated detection limit (EDL) and not the LOD since the EDL was found to be greater than the LOD. Positive results below the laboratory's limit of quantitation (LOQ) and above the EDL are estimated (J) due to the uncertainty below the LOQ.

Project screening limits (PSLs) are evaluated for non-detected values only (reported at the LOD). All LODs are below the PSLs.

Data Usability Assessment

The data usability assessment was performed to determine if the analytical data reported by the laboratory for this SDG met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

This evaluation is based on laboratory quality control (QC) and limited field information available at the time of the assessment for this SDG.

The following accuracy issues were identified: Several 2,3,7,8-substituted isomers in many soil samples were qualified as estimated (J) since these affected compounds were identified as EMPCs. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values.

The following precision issues were identified: The positive OCDF and total TCDD results in samples IOA-SS-EU15-0002 and IOA-SS-DUP01-080911; and the positive total HxCDD results in samples IOA-SS-EU46-0002 and IOA-SS-DUP02-081011 were qualified as estimated due to the exceeded field duplicate RPD QC criterion. Although specific QC criteria were not met in these instances, the affected positive results are usable as estimated values.

The project goals with respect to sensitivity and laboratory data completeness were met for this data set. Data usability was not impacted with regards to sensitivity and laboratory data completeness.

Tables: Data Summary Tables
Data Validation Qualifiers and Codes

Enclosures: Data Validation Worksheets

PROJ_NO: 02073	NSAMPLE	IOA-SS-DUP01-080911			IOA-SS-DUP02-081011			IOA-SS-EU07-0002			IOA-SS-EU09-0002		
SDG: 31102123	LAB_ID	31102123004			31102123015			31102123006			31102123007		
FRACTION: DIOX	SAMP_DATE	8/9/2011			8/10/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	FD			FD			NM			NM		
	UNITS	NG/KG			NG/KG			NG/KG			NG/KG		
	PCT_SOLIDS	93.6			92.0			94.4			91.7		
	DUP_OF	IOA-SS-EU15-0002			IOA-SS-EU46-0002								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD		299			633			415			222		
1,2,3,4,6,7,8,9-OCDF		21.9	J	G	5.94			13.9			20.5		
1,2,3,4,6,7,8-HPCDD		26.8			22.2			15.9			20.5		
1,2,3,4,6,7,8-HPCDF		9.85			3.3			8.14			15.6		
1,2,3,4,7,8,9-HPCDF		0.848	J	P	0.988	U		0.883	U		2.05	J	P
1,2,3,4,7,8-HXCDD		0.368	J	PW	0.206	J	P	0.314	J	PW	0.384	J	P
1,2,3,4,7,8-HXCDF		1.05	J	P	0.709	J	PW	0.51	J	P	5.13		
1,2,3,6,7,8-HXCDD		1.08	J	PW	0.525	J	PW	0.598	J	PW	1.33	J	P
1,2,3,6,7,8-HXCDF		1.05	J	PW	0.746	J	P	0.519	J	P	7.61		
1,2,3,7,8,9-HXCDD		0.728	J	PW	0.4	J	P	0.36	J	P	0.918	J	P
1,2,3,7,8,9-HXCDF		1.07	U		0.988	U		0.883	U		2.02	J	P
1,2,3,7,8-PECDD		1.32	J	PW	0.247	U		0.221	U		1.7	J	PW
1,2,3,7,8-PECDF		0.248	J	PW	0.494	U		1.49	J	P	1.01	J	P
2,3,4,6,7,8-HXCDF		2.38	J	P	1.69	J	P	0.998	J	PW	17.5		
2,3,4,7,8-PECDF		2.98			2.2	J	P	1.02	J	P	24.3		
2,3,7,8-TCDD		0.214	U		0.198	U		0.177	U		0.366	J	P
2,3,7,8-TCDF		0.318	U	A	0.464	UJ	AW	0.371	U	A	1.11	J	A
TOTAL HPCDD		61.7			51.2			35.5			45.8		
TOTAL HPCDF		27.3			8.16			19.9			39.3		
TOTAL HXCDD		8.39	J	W	3.92	J	GW	5.16	J	PW	12.8		
TOTAL HXCDF		25.3	J	W	15.9	J	W	12.2	J	W	169	J	W
TOTAL PECDD		3.36	J	W	0.54	J	PW	0.569	J	PW	10.1	J	W
TOTAL PECDF		27.3	J	W	22.4			12.3	J	W	225		
TOTAL TCDD		0.877	J	G	0.198	U		0.36	J	PW	2.63	J	W
TOTAL TCDF		9.73	J	W	5.88	J	W	2.67	J	W	52.8		

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU13-0002			IOA-SS-EU13-0002-A			IOA-SS-EU15-0002			IOA-SS-EU15-0002-A		
SDG: 31102123	LAB_ID	31102123011			31102123011			31102123005			31102123005		
FRACTION: DIOX	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/KG			NG/KG			NG/KG			NG/KG		
	PCT_SOLIDS	89.6			89.6			93.3			93.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD		462						470					
1,2,3,4,6,7,8,9-OCDF		30.4						38.5	J	G			
1,2,3,4,6,7,8-HPCDD		60.2						40.3					
1,2,3,4,6,7,8-HPCDF		27.1						16					
1,2,3,4,7,8,9-HPCDF		1.31	J	P				1.4	J	P			
1,2,3,4,7,8-HXCDD		0.957	J	P				0.379	J	PW			
1,2,3,4,7,8-HXCDF		2.22	J	P				1.8	J	P			
1,2,3,6,7,8-HXCDD		3.03						1.86	J	PW			
1,2,3,6,7,8-HXCDF		2.61	J	P				1.76	J	P			
1,2,3,7,8,9-HXCDD		1.62	J	P				1.14	J	P			
1,2,3,7,8,9-HXCDF		0.811	J	P				0.974	U				
1,2,3,7,8-PECDD		0.642	J	PW				0.587	J	PW			
1,2,3,7,8-PECDF		0.739	J	P				0.427	J	PW			
2,3,4,6,7,8-HXCDF		5.19						3.27					
2,3,4,7,8-PECDF		6.5						4.63					
2,3,7,8-TCDD		0.623						0.222	U				
2,3,7,8-TCDF					0.87						0.445	U	A
TOTAL HPCDD		124						96.4					
TOTAL HPCDF		59.8						45.6					
TOTAL HXCDD		21.3	J	W				12.9	J	W			
TOTAL HXCDF		57.4	J	W				38					
TOTAL PECDD		6.54	J	W				3.63	J	W			
TOTAL PECDF		56.9						41.1	J	W			
TOTAL TCDD		4.51	J	W				2.59	J	GW			
TOTAL TCDF		19.6	J	W				13.2	J	W			

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU27-0002			IOA-SS-EU28-0002			IOA-SS-EU36-0002			IOA-SS-EU37-0002		
SDG: 31102123	LAB_ID	31102123012			31102123003			31102123014			31102123010		
FRACTION: DIOX	SAMP_DATE	8/10/2011			8/9/2011			8/10/2011			8/9/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/KG			NG/KG			NG/KG			NG/KG		
	PCT_SOLIDS	91.9			92.8			93.5			94.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD		544			704			583			359		
1,2,3,4,6,7,8,9-OCDF		7.14			6.03			5.07			5.87		
1,2,3,4,6,7,8-HPCDD		37.6			16.7			21.2			12		
1,2,3,4,6,7,8-HPCDF		5.42			4.77			4.1			4.91		
1,2,3,4,7,8,9-HPCDF		0.989	U		1.08	U		0.972	U		1.05	U	
1,2,3,4,7,8-HXCDD		0.344	J	P	0.254	J	PW	0.486	U		0.135	J	PW
1,2,3,4,7,8-HXCDF		1.04	J	P	1.3	J	PW	0.892	J	PW	0.994	J	P
1,2,3,6,7,8-HXCDD		1.06	J	P	0.539	U		0.765	J	P	0.302	J	PW
1,2,3,6,7,8-HXCDF		1.31	J	P	1.75	J	P	0.912	J	PW	0.568	J	P
1,2,3,7,8,9-HXCDD		0.735	J	PW	0.539	U		0.454	J	PW	0.317	J	PW
1,2,3,7,8,9-HXCDF		0.989	U		0.502	J	PW	0.972	U		1.05	U	
1,2,3,7,8-PECDD		0.247	U		0.269	U		0.239	J	P	0.264	U	
1,2,3,7,8-PECDF		0.28	J	P	0.539	U		0.281	J	PW	0.294	J	PW
2,3,4,6,7,8-HXCDF		2.83			4.23			2.15	J	PW	0.868	J	P
2,3,4,7,8-PECDF		4.04			7.6			3.18			1.32	J	P
2,3,7,8-TCDD		0.367	UJ	AW	0.219	U		0.422	J	PW	0.439	J	PW
2,3,7,8-TCDF		0.659	J	A	0.568	UJ	AW	0.444	U	A			
TOTAL HPCDD		80.2			40.1			50.8			28.4		
TOTAL HPCDF		11.9			10.5	J	W	8.25			6.72	J	W
TOTAL HXCDD		9.93	J	W	3.3	J	W	5.21	J	W	2.64	J	W
TOTAL HXCDF		28.6			43.4	J	W	21	J	W	9.48	J	W
TOTAL PECDD		3.58	J	W	1.75	J	PW	2.01	J	PW	0.45	J	PW
TOTAL PECDF		39.8	J	W	57.3	J	W	27	J	W	12.2	J	W
TOTAL TCDD		1.88	J	W	0.219	U		1.21	J	W	0.439	J	PW
TOTAL TCDF		12.8	J	W	13.2	J	W	7.16	J	W	5.5	J	W

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU37-0002-A			IOA-SS-EU38-0002			IOA-SS-EU39-0002			IOA-SS-EU43-0002		
SDG: 31102123	LAB_ID	31102123010			31102123002			31102123001			31102123016		
FRACTION: DIOX	SAMP_DATE	8/9/2011			8/9/2011			8/9/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/KG			NG/KG			NG/KG			NG/KG		
	PCT_SOLIDS	94.8			92.2			89.0			95.8		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD					50.2			203			4610		
1,2,3,4,6,7,8,9-OCDF					0.986	U		24			20.3		
1,2,3,4,6,7,8-HPCDD					1.04	J	PW	21.2			270		
1,2,3,4,6,7,8-HPCDF					0.404	J	PW	17.5			30.6		
1,2,3,4,7,8,9-HPCDF					0.986	U		0.952	J	P	2.27	J	P
1,2,3,4,7,8-HXCDD					0.493	U		0.408	J	P	2.23	J	P
1,2,3,4,7,8-HXCDF					0.247	U		3.92			4.46		
1,2,3,6,7,8-HXCDD					0.493	U		1.3	J	P	5.83		
1,2,3,6,7,8-HXCDF					0.247	U		4.06			3.71		
1,2,3,7,8,9-HXCDD					0.493	U		0.937	J	P	4.18		
1,2,3,7,8,9-HXCDF					0.986	U		1.09	J	P	0.918	J	PW
1,2,3,7,8-PECDD					0.247	U		0.534	J	PW	4.1	J	W
1,2,3,7,8-PECDF					0.493	U		0.87	J	PW	1.53	J	P
2,3,4,6,7,8-HXCDF					0.247	U		8.9			7.59		
2,3,4,7,8-PECDF					0.142	J		14.6			10.6		
2,3,7,8-TCDD					0.197	U		1.68			0.277	U	
2,3,7,8-TCDF		0.419	U	A	0.194	UJ	AW	1.15	UJ	AW			
TOTAL HPCDD					2.54	J	PW	46.2			827		
TOTAL HPCDF					0.563	J	PW	32.3	J	W	77.4		
TOTAL HXCDD					0.493	U		11.7			67.4		
TOTAL HXCDF					0.431	J	PW	92.9			88.3	J	W
TOTAL PECDD					0.247	U		7.16	J	W	15.4		
TOTAL PECDF					0.664	J	PW	124	J	W	104	J	W
TOTAL TCDD					0.197	U		4.52	J	W	0.885	J	W
TOTAL TCDF					0.922	J	AW	39	J	W	33.4	J	W

PROJ_NO: 02073	NSAMPLE	IOA-SS-EU43-0002-A			IOA-SS-EU46-0002		
SDG: 31102123	LAB_ID	31102123016			31102123013		
FRACTION: DIOX	SAMP_DATE	8/10/2011			8/10/2011		
MEDIA: SOIL	QC_TYPE	NM			NM		
	UNITS	NG/KG			NG/KG		
	PCT_SOLIDS	95.8			91.8		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,3,4,6,7,8,9-OCDD					768		
1,2,3,4,6,7,8,9-OCDF					6.39		
1,2,3,4,6,7,8-HPCDD					31		
1,2,3,4,6,7,8-HPCDF					3.96		
1,2,3,4,7,8,9-HPCDF					0.99	U	
1,2,3,4,7,8-HXCDD					0.349	J	PW
1,2,3,4,7,8-HXCDF					0.744	J	P
1,2,3,6,7,8-HXCDD					0.814	J	P
1,2,3,6,7,8-HXCDF					1.06	J	P
1,2,3,7,8,9-HXCDD					0.791	J	PW
1,2,3,7,8,9-HXCDF					0.366	J	PW
1,2,3,7,8-PECDD					0.318	J	P
1,2,3,7,8-PECDF					0.353	J	PW
2,3,4,6,7,8-HXCDF					2.31	J	P
2,3,4,7,8-PECDF					3.58		
2,3,7,8-TCDD					0.492	J	PW
2,3,7,8-TCDF		4.15			0.428	UJ	AW
TOTAL HPCDD					73.2		
TOTAL HPCDF					9.82		
TOTAL HXCDD					7.67	J	GW
TOTAL HXCDF					24	J	W
TOTAL PECDD					2.77	J	W
TOTAL PECDF					34.1	J	W
TOTAL TCDD					0.901	J	W
TOTAL TCDF					8.15	J	W

APPENDIX C

ANALYTICAL DATA

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE													
1,1,2,2-TETRACHLOROETHANE													
1,1,2-TRICHLOROETHANE													
1,1-DICHLOROETHANE													
1,1-DICHLOROETHENE													
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE													
1,2-DICHLOROETHANE													
1,2-DICHLOROPROPANE													
1,3-DICHLOROBENZENE													
1,4-DICHLOROBENZENE													
2-BUTANONE													
2-HEXANONE													
4-METHYL-2-PENTANONE													
ACETONE													
BENZENE							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
BROMODICHLOROMETHANE													
BROMOFORM													
BROMOMETHANE													
CARBON DISULFIDE													
CARBON TETRACHLORIDE													
CHLOROBENZENE													
CHLORODIBROMOMETHANE													
CHLOROETHANE													
CHLOROFORM													
CHLOROMETHANE													
CIS-1,2-DICHLOROETHENE													
CIS-1,3-DICHLOROPROPENE													
ETHYLBENZENE							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
M+P-XYLENES													
METHYLENE CHLORIDE													
STYRENE													
TETRACHLOROETHENE													
TOLUENE							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
TOTAL 1,2-DICHLOROETHENE													
TOTAL XYLENES							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
TRANS-1,2-DICHLOROETHENE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
TRANS-1,3-DICHLOROPROPENE													
TRICHLOROETHENE													
VINYL CHLORIDE													
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS							5900 U	8450 U	11000 U	6600 U	11000 U	12000 U	12000 U
C5-C8 ALIPHATICS (WEIGHTED 0.5)							2900 U	4250 U	5600 U	3300 U	5700 U	5900 U	5900 U
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS							2900 U	4250 U	5600 U	3300 U	5800 U	5900 U	5900 U
C9-C10 AROMATICS (WEIGHTED 1.0)							3000 U	4300 U	5600 U	3300 U	5800 U	5900 U	5900 U
C9-C12 ALIPHATICS							14000 U	18000 U	22000 U	1700 U	2900 U	3000 U	3000 U
C9-C12 ALIPHATICS (WEIGHTED 0.05)							720 U	910 U	1100 U	83 U	140 U	150 U	150 U
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER							11 U	11 U	11 U	11 U	11 U	11 U	11 U
O-XYLENE							1500 U	2150 U	2800 U	1700 U	2900 U	3000 U	3000 U
TOTAL XYLENES							1500 U	2150 U	2800 U	1700 U	2900 U	3000 U	3000 U
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE													
2,2'-OXYBIS(1-CHLOROPROPANE)													
2,4,5-TRICHLOROPHENOL													
2,4,6-TRICHLOROPHENOL													
2,4-DICHLOROPHENOL													
2,4-DIMETHYLPHENOL													
2,4-DINITROPHENOL													
2,4-DINITROTOLUENE													
2,6-DINITROTOLUENE													
2-CHLORONAPHTHALENE													
2-CHLOROPHENOL													
2-METHYLNAPHTHALENE	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
2-METHYLPHENOL													
2-NITROANILINE													
2-NITROPHENOL													
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE													
3-NITROANILINE													
4,6-DINITRO-2-METHYLPHENOL													
4-BROMOPHENYL PHENYL ETHER													
4-CHLORO-3-METHYLPHENOL													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
4-CHLOROANILINE													
4-CHLOROPHENYL PHENYL ETHER													
4-METHYLPHENOL													
4-NITROANILINE													
4-NITROPHENOL													
ACENAPHTHENE	53 J	47.5 J	42 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
ACENAPHTHYLENE	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
ANTHRACENE	140 J	112 J	83 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BAP EQUIVALENT-HALFND	445 J	373 J	301 J	94 UJ	164 J	227 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BAP EQUIVALENT-POS	445 J	373 J	301 J	94 UJ	5.3 J	122 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BENZO(A)ANTHRACENE	340 J	290 J	240 J	94 UJ	53 J	110 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BENZO(A)PYRENE	310 J	260 J	210 J	94 UJ	97 UJ	97 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BENZO(B)FLUORANTHENE	400 J	340 J	280 J	94 UJ	97 UJ	130 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BENZO(G,H,I)PERYLENE	150 J	109 J	68 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BENZO(K)FLUORANTHENE	180 J	145 J	110 J	94 UJ	97 UJ	100 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
BIS(2-CHLOROETHOXY)METHANE													
BIS(2-CHLOROETHYL)ETHER													
BIS(2-ETHYLHEXYL)PHTHALATE													
BUTYL BENZYL PHTHALATE													
CARBAZOLE													
CHRYSENE	350 J	280 J	210 J	94 UJ	97 UJ	140 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
DIBENZO(A,H)ANTHRACENE	45 J	37 J	29 J	190 UJ	190 UJ	190 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
DIBENZOFURAN													
DIETHYL PHTHALATE													
DIMETHYL PHTHALATE													
DI-N-BUTYL PHTHALATE													
DI-N-OCTYL PHTHALATE													
FLUORANTHENE	760 J	620 J	480 J	94 UJ	76 J	250 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
FLUORENE	54 J	48 J	42 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
HEXACHLOROBENZENE													
HEXACHLOROBUTADIENE													
HEXACHLOROCYCLOPENTADIENE													
HEXACHLOROETHANE													
INDENO(1,2,3-CD)PYRENE	140 J	112 J	85 J	190 UJ	190 UJ	190 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
ISOPHORONE													
NAPHTHALENE	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
NITROBENZENE													
N-NITROSO-DI-N-PROPYLAMINE													
N-NITROSODIPHENYLAMINE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
PENTACHLOROPHENOL													
PHENANTHRENE	510 J	410 J	310 J	94 UJ	97 UJ	120 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
PHENOL													
PYRENE	630 J	505 J	380 J	94 UJ	64 J	210 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
TOTAL PAHS	4060 J	3320 J	2570 J	105 UJ	193 J	1160 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD													
4,4'-DDE													
4,4'-DDT													
ALDRIN													
ALPHA-BHC													
ALPHA-CHLORDANE													
AROCLOR-1016	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1221	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1232	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1242	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1248	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1254	7.8 U	7.65 U	7.5 U	7.3 U	7.7 U	7.4 U							
AROCLOR-1260	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J							
BETA-BHC													
DELTA-BHC													
DIELDRIN													
ENDOSULFAN I													
ENDOSULFAN II													
ENDOSULFAN SULFATE													
ENDRIN													
ENDRIN ALDEHYDE													
ENDRIN KETONE													
GAMMA-BHC (LINDANE)													
GAMMA-CHLORDANE													
HEPTACHLOR													
HEPTACHLOR EPOXIDE													
METHOXYCHLOR													
TOTAL AROCLOR	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J							
TOXAPHENE													
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM	4400	4600	4800	5400	6600	4400							
ANTIMONY	0.15 U	0.13 U	0.11 U	0.084 U	0.13 U	0.1 U							
ARSENIC	1.5	1.6	1.7	1	1.1	1.7	2	1.8	1.6			0.98	1.29
BARIUM	17	17.5	18	17	16	14	12.5	13.6	14.8			22.4	22
BERYLLIUM	0.44	0.312	0.37 U	0.3 U	0.25 U	0.3 U							
CADMIUM	0.28 U	0.24 U	0.2 U	0.15 U	0.2 U	0.17 U	0.05 U	0.0275	0.03			0.04 U	0.055 U
CALCIUM	1500 J	1500 J	1500 J	1100 J	940 J	1000 J							
CHROMIUM	5.5	5.6	5.7	5.9	15	7.4	7.8	6.45	5.1			7.2	7.95
COBALT	3.2	3.15	3.1	2.8	3.5	2.9							
COPPER	7.7	7.75	7.8	4.8	5.8	5.2							
IRON	9800	10400	11000	9600	12000	11000							
LEAD	16 J	15 J	14 J	6 J	9 J	5.3 J	7.3	7.5	7.7	6.3	10.6	4.6	4.9
MAGNESIUM	1600 J	1650 J	1700 J	1700 J	2000 J	1400 J							
MANGANESE	310 J	290 J	270 J	140 J	180 J	160 J							
MERCURY	0.02 J	0.016 J	0.012 J	0.0052 J	0.009 J	0.0019 J	0.02 U	0.02 U	0.02 U			0.02 U	0.02 U
NICKEL	4.7	4.7	4.7	4.3	14	5.2							
POTASSIUM	330	345	360	500	280	370							
SELENIUM	0.87	0.745 J	0.62 J	0.67 J	0.72	0.65 J	0.19 U	0.185 U	0.18 U			0.2 U	0.225 U
SILVER	0.084 U	0.0795 U	0.075 U	0.069 U	0.069 U	0.068 U	0.07 U	0.065 U	0.06 U			0.07 U	0.07 U
SODIUM	50 J	51 J	52 J	51 J	39 J	52 J							
THALLIUM	0.39	0.222	0.11 U	0.077 U	0.14 U	0.076 U							
VANADIUM	12	12	12	13	13	14							
ZINC	29	29	29	21	25	22							
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	15	13	11	11	15	11							
PERCENT SOLIDS													
TOTAL SOLIDS													
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE													
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313
TOP DEPTH	0	0	0	0	0	0	1	1	1	1	1	1	1
BOTTOM DEPTH	2	2	2	2	2	2	3	3	3	3	3	3	3
C11-C22 AROMATICS							160000 J	92800 J	51000 UJ	33000 U	39000 U	14000 U	21500 U
C11-C22 AROMATICS (WEIGHTED 1.0)							160000 J	92800 J	51000 UJ	33000 U	39000 U	14000 U	21500 U
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS							410000 J	325000 J	240000 J	28000 J	110000	6000 U	5750 UJ
C19-C36 ALIPHATICS (WEIGHTED 0.005)							2100 J	1650 J	1200 J	140 J	550	30 U	28.5 UJ
C9-C18 ALIPHATICS							190000 J	126000 J	62000 J	20000 U	12000 U	5000 U	6900 UJ
C9-C18 ALIPHATICS (WEIGHTED 0.05)							9300 J	6200 J	3100 J	980 U	580 U	250 U	345 UJ
EXTRACTABLE PETROLEUM HYDROCARBONS													
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD													
1,2,3,4,6,7,8,9-OCDF													
1,2,3,4,6,7,8-HPCDD													
1,2,3,4,6,7,8-HPCDF													
1,2,3,4,7,8,9-HPCDF													
1,2,3,4,7,8-HXCDD													
1,2,3,4,7,8-HXCDF													
1,2,3,6,7,8-HXCDD													
1,2,3,6,7,8-HXCDF													
1,2,3,7,8,9-HXCDD													
1,2,3,7,8,9-HXCDF													
1,2,3,7,8-PECDD													
1,2,3,7,8-PECDF													
2,3,4,6,7,8-HXCDF													
2,3,4,7,8-PECDF													
2,3,7,8-TCDD													
2,3,7,8-TCDF													
TEQ													
TEQ HALFND													
TOTAL HPCDD													
TOTAL HPCDF													
TOTAL HXCDD													
TOTAL HXCDF													
TOTAL PECDD													
TOTAL PECDF													
TOTAL TCDD													
TOTAL TCDF													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,1,2,2-TETRACHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,1,2-TRICHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,1-DICHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,1-DICHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		
1,2-DIBROMO-3-CHLOROPROPANE							4.2 U		5.2 U		4.6 U		
1,2-DIBROMOETHANE							4.2 U		5.2 U		4.6 U		
1,2-DICHLOROBENZENE		190 U					260 U		260 U		270 U		
1,2-DICHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,2-DICHLOROPROPANE		4.4 U					4.2 U		5.2 U		4.6 U		
1,3-DICHLOROBENZENE		190 U					260 U		260 U		270 U		
1,4-DICHLOROBENZENE		190 U					260 U		260 U		270 U		
2-BUTANONE		17.1 J					21 R		7.4 J		23 R		
2-HEXANONE		4.4 U					21 U		26 U		23 U		
4-METHYL-2-PENTANONE		4.4 U					21 R		26 R		23 R		
ACETONE		78.6 J					29 J		87		48		
BENZENE	5.5 U	0.88 U					4.2 U		5.2 U		4.6 U		
BROMODICHLOROMETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
BROMOFORM		4.4 U					4.2 U		5.2 U		4.6 U		
BROMOMETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
CARBON DISULFIDE		4.4 U					4.2 U		5.2 U		4.6 U		
CARBON TETRACHLORIDE		4.4 U					4.2 U		5.2 U		4.6 U		
CHLOROBENZENE		4.4 UJ					4.2 U		5.2 U		4.6 U		
CHLORODIBROMOMETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
CHLOROETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
CHLOROFORM		4.4 U					4.2 U		5.2 U		4.6 U		
CHLOROMETHANE		4.4 U					4.2 U		5.2 U		4.6 U		
CIS-1,2-DICHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		
CIS-1,3-DICHLOROPROPENE		4.4 U					4.2 U		5.2 U		4.6 U		
ETHYLBENZENE	5.5 U	0.88 UJ					4.2 U		5.2 U		4.6 U		
M+P-XYLENES		1000 U					4.2 U		5.2 U		4.6 U		
METHYLENE CHLORIDE		4.4 U					21 U		26 U		23 U		
STYRENE		4.4 UJ					4.2 U		5.2 U		4.6 U		
TETRACHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		
TOLUENE	5.5 U	0.88 U					4.2 U		5.2 U		4.6 U		
TOTAL 1,2-DICHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		
TOTAL XYLENES	5.5 U	1 J					4.2 U		5.2 U		4.6 U		
TRANS-1,2-DICHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
TRANS-1,3-DICHLOROPROPENE		4.4 U					4.2 U		5.2 U		4.6 U		
TRICHLOROETHENE		4.4 U					4.2 U		5.2 U		4.6 U		
VINYL CHLORIDE		4.4 U					4.2 U		5.2 U		4.6 U		
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS	12000 U	5290											
C5-C8 ALIPHATICS (WEIGHTED 0.5)	5900 U												
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS	5900 U	1000 U											
C9-C10 AROMATICS (WEIGHTED 1.0)	5900 U												
C9-C12 ALIPHATICS	3000 U	1870											
C9-C12 ALIPHATICS (WEIGHTED 0.05)	150 U												
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER	11 U	4.4 U											
O-XYLENE	3000 U	520 U					4.2 U		5.2 U		4.6 U		
TOTAL XYLENES	3000 U	520 U					4.2 U		5.2 U		4.6 U		
VOLATILE PETROLEUM HYDROCARBONS		7160											
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE		190 U					260 U		260 U		270 U		
2,2'-OXYBIS(1-CHLOROPROPANE)		190 U					260 U		260 U		270 U		
2,4,5-TRICHLOROPHENOL		190 U					260 U		260 U		270 U		
2,4,6-TRICHLOROPHENOL		190 U					260 U		260 U		270 U		
2,4-DICHLOROPHENOL		190 U					260 U		260 U		270 U		
2,4-DIMETHYLPHENOL		190 U					260 U		260 U		270 U		
2,4-DINITROPHENOL		760 UJ					520 U		520 U		540 U		
2,4-DINITROTOLUENE		190 U					260 U		260 U		270 U		
2,6-DINITROTOLUENE		190 U					260 U		260 U		270 U		
2-CHLORONAPHTHALENE		190 U					260 U		260 U		270 U		
2-CHLOROPHENOL		190 U					260 U		260 U		270 U		
2-METHYLNAPHTHALENE	360 U	190 U	19 UJ	94 UJ			260 U		260 U		270 U		
2-METHYLPHENOL		190 UJ					260 U		260 U		270 U		
2-NITROANILINE		190 U					520 U		520 U		540 U		
2-NITROPHENOL		190 U					260 U		260 U		270 U		
3&4-METHYLPHENOL		190 U											
3,3'-DICHLOROBENZIDINE		190 U					260 U		260 U		270 U		
3-NITROANILINE		190 U					520 U		520 U		540 U		
4,6-DINITRO-2-METHYLPHENOL		760 UJ					520 U		520 U		540 U		
4-BROMOPHENYL PHENYL ETHER		190 UJ					260 U		260 U		270 U		
4-CHLORO-3-METHYLPHENOL		190 UJ					520 U		520 U		540 U		

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
4-CHLOROANILINE		190 U					260 U		260 U		270 U		
4-CHLOROPHENYL PHENYL ETHER		190 UJ					260 U		260 U		270 U		
4-METHYLPHENOL							260 U		260 U		270 U		
4-NITROANILINE		190 U					520 U		520 U		540 U		
4-NITROPHENOL		760 U					520 U		520 U		540 U		
ACENAPHTHENE	360 U	190 U	34 J	94 UJ			260 U		260 U		270 U		
ACENAPHTHYLENE	360 U	190 U	94 J	94 UJ			260 U		260 U		270 U		
ANTHRACENE	360 U	190 U	86 J	94 UJ			260 U		260 U		74 J		
BAP EQUIVALENT-HALFND	360 U	190 U	501 J	161 J			96.7 J		52.3 J		621 J		
BAP EQUIVALENT-POS	360 U	190 U	501 J	4.1 J			69.3 J		51 J		621 J		
BENZO(A)ANTHRACENE	360 U	190 U	380 J	41 J			260 U		29 J		310		
BENZO(A)PYRENE	360 U	190 U	360 J	94 UJ			56		30 J		400		
BENZO(B)FLUORANTHENE	360 U	190 U	430 J	94 UJ			38 J		59 J		610		
BENZO(G,H,I)PERYLENE	360 U	190 U	120 J	94 UJ			260 U		260 U		280		
BENZO(K)FLUORANTHENE	360 U	190 U	130 J	94 UJ			260 U		260 U		230 J		
BIS(2-CHLOROETHOXY)METHANE		190 U					260 U		260 U		270 U		
BIS(2-CHLOROETHYL)ETHER		190 U					260 U		260 U		270 U		
BIS(2-ETHYLHEXYL)PHTHALATE		190 U					260 U		260 U		270 U		
BUTYL BENZYL PHTHALATE		190 U					260 U		260 U		270 U		
CARBAZOLE		190 U					260 U		260 U		79 J		
CHRYSENE	360 U	190 U	370 J	94 UJ			260 U		39 J		420		
DIBENZO(A,H)ANTHRACENE	360 U	190 U	47 J	190 UJ			9.5 J		7.3 J		95		
DIBENZOFURAN		190 U					260 U		260 U		270 U		
DIETHYL PHTHALATE		190 U					260 U		260 U		270 U		
DIMETHYL PHTHALATE		190 U					260 U		260 U		270 U		
DI-N-BUTYL PHTHALATE		190 U					260 U		260 U		270 U		
DI-N-OCTYL PHTHALATE		190 U					260 U		260 U		270 U		
FLUORANTHENE	360 U	17.7 J	430 J	94 UJ			49 J		65 J		810		
FLUORENE	360 U	190 U	30 J	94 UJ			260 U		260 U		270 U		
HEXACHLOROBENZENE		190 U					260 U		260 U		270 U		
HEXACHLOROBUTADIENE		190 U					260 U		260 U		270 U		
HEXACHLOROCYCLOPENTADIENE		760 UJ					260 U		260 U		270 U		
HEXACHLOROETHANE		190 U					260 U		260 U		270 U		
INDENO(1,2,3-CD)PYRENE	360 U	190 U	110 J	190 UJ			260 U		49 J		310		
ISOPHORONE		190 U					260 U		260 U		270 U		
NAPHTHALENE	360 U	190 U	11 J	94 UJ			260 U		260 U		270 U		
NITROBENZENE		190 U					260 U		260 U		270 U		
N-NITROSO-DI-N-PROPYLAMINE		190 U					260 U		260 U		270 U		
N-NITROSODIPHENYLAMINE		190 U					260 U		260 U		270 U		

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
PENTACHLOROPHENOL		760 UJ					520 U		11 U		11 U		11 U
PHENANTHRENE	360 U	190 U	200 J	94 UJ			260 U		260 U		440		
PHENOL		190 U					260 U		260 U		270 U		
PYRENE	360 U	25 J	480 J	94 UJ			36 J		57 J		640		
TOTAL PAHS	360 U	42.7 J	3310 J	41 J			188 J		335 J		4620 J		
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD							1.7 U		1.7 U		1.7 U		
4,4'-DDE							1.7 U		2.1		1.7 U		
4,4'-DDT							1.7 U		18		31 J		
ALDRIN							0.83 U		0.85 U		0.84 U		
ALPHA-BHC							0.83 U		0.85 U		0.84 U		
ALPHA-CHLORDANE							0.83 U		8.4 J		0.84 U		
AROCLOR-1016		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1221		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1232		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1242		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1248		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1254		18 U	7.6 U		26 U	26 U	26 U	26 U	27 U	26 U	26 U		26 U
AROCLOR-1260		18 U	150		290	96 J	20 J	1800	160	250	220		170
BETA-BHC							0.83 U		0.85 U		0.84 U		
DELTA-BHC							0.83 U		0.85 U		0.84 U		
DIELDRIN							1.7 U		1.7 U		1.7 U		
ENDOSULFAN I							0.83 U		0.85 U		0.84 U		
ENDOSULFAN II							1.7 U		1.7 U		1.7 U		
ENDOSULFAN SULFATE							1.7 U		1.7 U		1.7 U		
ENDRIN							1.7 U		1.7 U		1.7 U		
ENDRIN ALDEHYDE							1.7 U		1.7 U		1.7 U		
ENDRIN KETONE							1.7 U		1.7 U		1.7 U		
GAMMA-BHC (LINDANE)							0.83 U		0.85 U		0.84 U		
GAMMA-CHLORDANE							0.83 U		6.1		0.84 U		
HEPTACHLOR							0.83 U		0.91 J		0.84 U		
HEPTACHLOR EPOXIDE							0.83 U		0.85 U		0.84 U		
METHOXYCHLOR							8.3 U		8.5 U		8.4 U		
TOTAL AROCLOR		18 U	150		290	96 J	20 J	1800	160	250	220		170
TOXAPHENE							26 U		27 U		26 U		
HERBICIDES (UG/KG)													
2,4,5-T									23 U		22 U		21 U
2,4,5-TP (SILVEX)									23 U		22 U		21 U
2,4-D									91 U		90 U		85 U

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
2,4-DB									91 U		90 U		85 U
DALAPON									46 U		45 U		42 U
DICAMBA									46 U		45 U		42 U
DICHLOROPROP									91 U		90 U		85 U
DINOSEB									14 U		13 U		13 U
MCPA									9100 U		9000 U		8500 U
MCPP									9100 U		9000 U		8500 U
METALS (MG/KG)													
ALUMINUM		7890	5500	7400			2800 J		7500 J		8100 J		
ANTIMONY		6.4 U	0.23 U	0.13 U			0.46 J		1.3		0.92		
ARSENIC	1.6	2	0.89	2.4			5.2		3.4		2.9	4.5	
BARIUM	21.5	25.1	19	19			15 U		17 U		18 U	8.7 J	
BERYLLIUM		0.54 U	0.36	0.36			0.33 U		0.31 U		0.38 U		
CADMIUM	0.07 U	0.54 U	0.25 U	0.37			0.19 J		0.4 J		0.56 J	0.62 U	
CALCIUM		1620 J	1600 J	1100 J			320		1200		1100		
CHROMIUM	8.7	8.5	6.9	9.5			5.8		12		11	5.5	
COBALT		5.4 U	2.7	5.5			1.9 U		7.4		6.3 J		
COPPER		3.7 J	5	11			3.2		15		12		
IRON		9740	11000	17000			10000		15000		15000		
LEAD	5.2	12	16 J	11 J			6.8		40		25	6	
MAGNESIUM		1100	1600 J	2900 J			540		3500		3000		
MANGANESE		113	170 J	330 J			68		350		370		
MERCURY	0.02 U	0.038 UJ	0.0073 J	0.006 J			0.0041 J		0.0061 J		0.024 J	0.05 U	
NICKEL		4.3 U	4.2	9.1			3.6 J		13		12		
POTASSIUM		540 U	290	400			660 J		460 J		520 J		
SELENIUM	0.25 U	11 U	0.62 J	0.58 J			0.62 U		0.48 J		0.65 UJ	0.62 UJ	
SILVER	0.07 U	1.1 U	0.1 U	0.061 U			0.12 UJ		0.13 UJ		0.13 UJ	0.12 UJ	
SODIUM		540 U	59 J	40 J			58 U		87 U		89 U		
THALLIUM		1.5 U	0.068 U	0.077 U			0.62 UJ		0.67 UJ		0.65 UJ		
VANADIUM		18.2	13	18			19		20		24		
ZINC		22.7	27	44			13		43		97		
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE			14	11	5.6	6	4.2	6.9	7.6	5.5	7.3	6.1	6.2
PERCENT SOLIDS		93.4							87.6		89		94.6
TOTAL SOLIDS													
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE							0.92 U		1.1 U		0.94 U		
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU05	EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	B116-MW-04	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310
SAMPLE ID	B116-OSB4AA-D	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19970313	19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104
TOP DEPTH	1	1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5
BOTTOM DEPTH	3	2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1
C11-C22 AROMATICS	29000 U	10000 UJ					51000 U		53000 U		54000 U		
C11-C22 AROMATICS (WEIGHTED 1.0)	29000 U												
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS	5500 UJ	10000 U					51000 U		13000 J		54000 U		
C19-C36 ALIPHATICS (WEIGHTED 0.005)	27 UJ												
C9-C18 ALIPHATICS	8800 UJ	10000 U					51000 U		53000 U		54000 U		
C9-C18 ALIPHATICS (WEIGHTED 0.05)	440 UJ												
EXTRACTABLE PETROLEUM HYDROCARBONS		10000 U											
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD				415									
1,2,3,4,6,7,8,9-OCDF				13.9									
1,2,3,4,6,7,8-HPCDD				15.9									
1,2,3,4,6,7,8-HPCDF				8.14									
1,2,3,4,7,8,9-HPCDF				0.883 U									
1,2,3,4,7,8-HXCDD				0.314 J									
1,2,3,4,7,8-HXCDF				0.51 J									
1,2,3,6,7,8-HXCDD				0.598 J									
1,2,3,6,7,8-HXCDF				0.519 J									
1,2,3,7,8,9-HXCDD				0.36 J									
1,2,3,7,8,9-HXCDF				0.883 U									
1,2,3,7,8-PECDD				0.221 U									
1,2,3,7,8-PECDF				1.49 J									
2,3,4,6,7,8-HXCDF				0.998 J									
2,3,4,7,8-PECDF				1.02 J									
2,3,7,8-TCDD				0.177 U									
2,3,7,8-TCDF				0.371 U									
TEQ				1.05 J									
TEQ HALFND				1.32 J									
TOTAL HPCDD				35.5									
TOTAL HPCDF				19.9									
TOTAL HXCDD				5.16 J									
TOTAL HXCDF				12.2 J									
TOTAL PECDD				0.569 J									
TOTAL PECDF				12.3 J									
TOTAL TCDD				0.36 J									
TOTAL TCDF				2.67 J									

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE										0.5 U			
1,1,2,2-TETRACHLOROETHANE										0.6 U			
1,1,2-TRICHLOROETHANE										0.6 U			
1,1-DICHLOROETHANE										0.4 U			
1,1-DICHLOROETHENE										0.5 U			
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE										1 U			
1,2-DICHLOROETHANE										0.6 U			
1,2-DICHLOROPROPANE										0.6 U			
1,3-DICHLOROBENZENE										0.6 U			
1,4-DICHLOROBENZENE										0.8 U			
2-BUTANONE										2 U			
2-HEXANONE										2 U			
4-METHYL-2-PENTANONE										1 U			
ACETONE										51 UJ			
BENZENE							5.5 U	260 U		0.6 U			
BROMODICHLOROMETHANE										0.7 U			
BROMOFORM										0.9 U			
BROMOMETHANE										0.6 U			
CARBON DISULFIDE										0.4 U			
CARBON TETRACHLORIDE										0.5 U			
CHLOROBENZENE										0.9 U			
CHLORODIBROMOMETHANE										1 U			
CHLOROETHANE										1 U			
CHLOROFORM										0.6 U			
CHLOROMETHANE										0.6 U			
CIS-1,2-DICHLOROETHENE										0.6 U			
CIS-1,3-DICHLOROPROPENE										0.6 U			
ETHYLBENZENE							0.8 J	260 U		0.5 U			
M+P-XYLENES								1000 U		1 U			
METHYLENE CHLORIDE										13 UJ			
STYRENE										1 U			
TETRACHLOROETHENE										0.6 UJ			
TOLUENE							4 J	790 U		0.7 U			
TOTAL 1,2-DICHLOROETHENE										0.6 U			
TOTAL XYLENES							3 J	1000 U		1 U			
TRANS-1,2-DICHLOROETHENE										0.6 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
TRANS-1,3-DICHLOROPROPENE										0.9 U			
TRICHLOROETHENE										0.7 U			
VINYL CHLORIDE										0.5 U			
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS							48000 J	17100					
C5-C8 ALIPHATICS (WEIGHTED 0.5)							24000 J						
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS							5600 U	1060					
C9-C10 AROMATICS (WEIGHTED 1.0)							5600 U						
C9-C12 ALIPHATICS							32000 J	3200					
C9-C12 ALIPHATICS (WEIGHTED 0.05)							1600 J						
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER							11 U	790 U					
O-XYLENE							2800 U	520 U		0.8 U			
TOTAL XYLENES							2800 U	520 U		0.8 U			
VOLATILE PETROLEUM HYDROCARBONS								21400					
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE										24 U			
2,2'-OXYBIS(1-CHLOROPROPANE)										57 U			
2,4,5-TRICHLOROPHENOL										64 U			
2,4,6-TRICHLOROPHENOL										57 U			
2,4-DICHLOROPHENOL										63 U			
2,4-DIMETHYLPHENOL										59 U			
2,4-DINITROPHENOL										180 UJ			
2,4-DINITROTOLUENE										38 U			
2,6-DINITROTOLUENE										51 U			
2-CHLORONAPHTHALENE										48 U			
2-CHLOROPHENOL										63 U			
2-METHYLNAPHTHALENE						11 J	360 U	410 U		24 U	90 UJ	20 UJ	
2-METHYLPHENOL										69 U			
2-NITROANILINE										39 U			
2-NITROPHENOL										64 U			
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE										52 U			
3-NITROANILINE										33 U			
4,6-DINITRO-2-METHYLPHENOL										51 U			
4-BROMOPHENYL PHENYL ETHER										46 U			
4-CHLORO-3-METHYLPHENOL										48 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
4-CHLOROANILINE										45 U			
4-CHLOROPHENYL PHENYL ETHER										42 U			
4-METHYLPHENOL										150 U			
4-NITROANILINE										45 U			
4-NITROPHENOL										82 U			
ACENAPHTHENE						58 J	360 U	410 U		44 U	90 UJ	16 J	
ACENAPHTHYLENE						19 UJ	360 U	410 U		37 U	90 UJ	20 J	
ANTHRACENE						91 J	360 U	410 U		24 U	90 UJ	47 J	
BAP EQUIVALENT-HALFND						346 J	360 U	410 U		79.9 J	185 J	257 J	
BAP EQUIVALENT-POS						346 J	360 U	410 U		79.9 J	86 J	257 J	
BENZO(A)ANTHRACENE						270 J	360 U	410 U		52 J	99 J	200 J	
BENZO(A)PYRENE						240 J	360 U	410 U		37 J	66 J	170 J	
BENZO(B)FLUORANTHENE						340 J	360 U	410 U		89 J	100 J	240 J	
BENZO(G,H,I)PERYLENE						95 J	360 U	410 U		49 J	90 UJ	100 J	
BENZO(K)FLUORANTHENE						110 J	360 U	410 U		96 J	53 UJ	110 J	
BIS(2-CHLOROETHOXY)METHANE										31 U			
BIS(2-CHLOROETHYL)ETHER										43 U			
BIS(2-ETHYLHEXYL)PHTHALATE										89 J			
BUTYL BENZYL PHTHALATE										39 U			
CARBAZOLE										30 U			
CHRYSENE						280 J	360 U	410 U		94 J	91 J	200 J	
DIBENZO(A,H)ANTHRACENE						35 J	360 U	410 U		23 J	180 UJ	32 J	
DIBENZOFURAN										36 U			
DIETHYL PHTHALATE										27 U			
DIMETHYL PHTHALATE										26 U			
DI-N-BUTYL PHTHALATE										36 J			
DI-N-OCTYL PHTHALATE										20 UJ			
FLUORANTHENE						580 J	360 U	410 U		130 J	150 J	370 J	
FLUORENE						52 J	360 U	410 U		44 U	90 UJ	19 J	
HEXACHLOROBENZENE										39 U			
HEXACHLOROBUTADIENE										84 U			
HEXACHLOROCYCLOPENTADIENE										120 U			
HEXACHLOROETHANE										62 U			
INDENO(1,2,3-CD)PYRENE						87 J	360 U	410 U		47 J	180 UJ	100 J	
ISOPHORONE										43 U			
NAPHTHALENE						16 J	360 U	410 U		29 U	90 UJ	20 UJ	
NITROBENZENE										70 U			
N-NITROSO-DI-N-PROPYLAMINE										42 U			
N-NITROSODIPHENYLAMINE										26 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
PENTACHLOROPHENOL										310 U			
PHENANTHRENE						400 J	360 U	410 U		85 J	63 J	190 J	
PHENOL										70 U			
PYRENE						480 J	360 U	410 U		140 J	170 J	300 J	
TOTAL PAHS						3140 J	360 U	410 U		842 J	739 J	2110 J	
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD										3.4 U			
4,4'-DDE										8.6 J			
4,4'-DDT										20 J			
ALDRIN										1.7 U			
ALPHA-BHC										1.7 U			
ALPHA-CHLORDANE										9.3			
AROCLOR-1016	25 U	26 U	26 U	26 U	25 U	38 U			400 U	34 U	7.2 U	8.2 U	
AROCLOR-1221	25 U	26 U	26 U	26 U	25 U	38 U			400 U	69 U	7.2 U	8.2 U	
AROCLOR-1232	25 U	26 U	26 U	26 U	25 U	38 U			400 U	34 U	7.2 U	8.2 U	
AROCLOR-1242	25 U	26 U	26 U	26 U	25 U	38 U			400 U	34 U	7.2 U	8.2 U	
AROCLOR-1248	25 U	26 U	26 U	26 U	25 U	38 U			400 U	34 U	7.2 U	8.2 U	
AROCLOR-1254	25 U	26 U	26 U	26 U	25 U	38 U			400 U	34 U	7.2 U	8.2 U	
AROCLOR-1260	11 J	31	18 J	26 U	4.1 J	470			12000	440 J	7.2 U	18 J	
BETA-BHC										1.7 U			
DELTA-BHC										1.7 U			
DIELDRIN										3.4 U			
ENDOSULFAN I										1.7 U			
ENDOSULFAN II										3.4 U			
ENDOSULFAN SULFATE										3.4 U			
ENDRIN										3.4 U			
ENDRIN ALDEHYDE										29 J			
ENDRIN KETONE										3.4 U			
GAMMA-BHC (LINDANE)										1.7 U			
GAMMA-CHLORDANE										7.9			
HEPTACHLOR										1.7 U			
HEPTACHLOR EPOXIDE										4 J			
METHOXYCHLOR										17 U			
TOTAL AROCLOR	11 J	31	18 J	26 U	4.1 J	470			12000	440 J	7.2 U	18 J	
TOXAPHENE										170 U			
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM						5600				6900 J	7600	6600	4900
ANTIMONY						0.24				4.8 UJ	0.089 U	0.19 U	0.14 U
ARSENIC						1.4				3.4	1.2	1.3	1.9
BARIUM						22				23	15	21	16
BERYLLIUM						0.3 U				0.36	0.35 J	0.22 U	0.38
CADMIUM						0.3 U				0.48 U	0.19 J	0.25 U	0.18 U
CALCIUM						1100 J				1100 J	1400	810 J	1100 J
CHROMIUM						8.1				11	9.2	8.6	6.3
COBALT						2.8				6	3.9	1.4	2.5
COPPER						9.7				6.6	7.1	6.2	4.4
IRON						11000				10000 J	13000	6100	11000
LEAD						36 J	9			23	11	27 J	13 J
MAGNESIUM						1600 J				1600	1900	900 J	1300 J
MANGANESE						180 J				210	220 J	75 J	150 J
MERCURY						0.02 J				0.01	0.017 J	0.038	0.0023 J
NICKEL						4.6				5.7	7.2	5.3	4.2
POTASSIUM						240				430	340 J	260	320
SELENIUM						0.65 J				0.96 U	0.76 U	0.88	0.7 J
SILVER						0.063 U				0.48 U	0.082 U	0.11 J	0.089 U
SODIUM						51 J				96 U	43 J	41 J	60 J
THALLIUM						0.37				0.96 U	0.1 U	0.069 U	0.078 U
VANADIUM						15				19	15	18	18
ZINC						37				31	33	25	23
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	4.3	5.1	4.3	4.9	3.9	14			18		7	19	7
PERCENT SOLIDS								94.1					
TOTAL SOLIDS													
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE										0.26 U			
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU08	EU08	EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14
LOCATION ID	SB07-330	SB07-330	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14
SAMPLE ID	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809
TOP DEPTH	0	1	0	1	0.5	0	1	1	0	0	0	0	0
BOTTOM DEPTH	1	2	1	2	1.5	2	3	2	2	1	2	2	2
C11-C22 AROMATICS							92000 UJ	10000 U					
C11-C22 AROMATICS (WEIGHTED 1.0)							92000 UJ						
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS							400000 J	10000 U					
C19-C36 ALIPHATICS (WEIGHTED 0.005)							2000 J						
C9-C18 ALIPHATICS							120000 J	10000 U					
C9-C18 ALIPHATICS (WEIGHTED 0.05)							5800 J						
EXTRACTABLE PETROLEUM HYDROCARBONS								10000 U					
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD						222						462	
1,2,3,4,6,7,8,9-OCDF						20.5						30.4	
1,2,3,4,6,7,8-HPCDD						20.5						60.2	
1,2,3,4,6,7,8-HPCDF						15.6						27.1	
1,2,3,4,7,8,9-HPCDF						2.05 J						1.31 J	
1,2,3,4,7,8-HXCDD						0.384 J						0.957 J	
1,2,3,4,7,8-HXCDF						5.13						2.22 J	
1,2,3,6,7,8-HXCDD						1.33 J						3.03	
1,2,3,6,7,8-HXCDF						7.61						2.61 J	
1,2,3,7,8,9-HXCDD						0.918 J						1.62 J	
1,2,3,7,8,9-HXCDF						2.02 J						0.811 J	
1,2,3,7,8-PECDD						1.7 J						0.642 J	
1,2,3,7,8-PECDF						1.01 J						0.739 J	
2,3,4,6,7,8-HXCDF						17.5						5.19	
2,3,4,7,8-PECDF						24.3						6.5	
2,3,7,8-TCDD						0.366 J						0.623	
2,3,7,8-TCDF						1.11 J						0.87	
TEQ						13.4 J						6 J	
TEQ HALFND						13.4 J						6 J	
TOTAL HPCDD						45.8						124	
TOTAL HPCDF						39.3						59.8	
TOTAL HXCDD						12.8						21.3 J	
TOTAL HXCDF						169 J						57.4 J	
TOTAL PECDD						10.1 J						6.54 J	
TOTAL PECDF						225						56.9	
TOTAL TCDD						2.63 J						4.51 J	
TOTAL TCDF						52.8						19.6 J	

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,1,2,2-TETRACHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,1,2-TRICHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,1-DICHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,1-DICHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			
1,2-DIBROMO-3-CHLOROPROPANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,2-DIBROMOETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,2-DICHLOROBENZENE						260 U	265 U	270 U		260 U			
1,2-DICHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,2-DICHLOROPROPANE						4.5 U	4.4 U	4.3 U		4.7 U			
1,3-DICHLOROBENZENE						260 U	265 U	270 U		260 U			
1,4-DICHLOROBENZENE						260 U	265 U	270 U		260 U			
2-BUTANONE						12 J	17.5 J	23 J		24 R			
2-HEXANONE						23 U	22 U	21 U		24 U			
4-METHYL-2-PENTANONE						23 R	22 R	21 R		24 R			
ACETONE						50 J	80 J	110 J		25 J			
BENZENE						4.5 U	2.22 J	2.2 J		4.7 U			
BROMODICHLOROMETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
BROMOFORM						4.5 U	4.4 U	4.3 U		4.7 U			
BROMOMETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
CARBON DISULFIDE						4.5 U	4.4 U	4.3 U		4.7 U			
CARBON TETRACHLORIDE						4.5 U	4.4 U	4.3 U		4.7 U			
CHLOROBENZENE						4.5 U	4.4 U	4.3 U		4.7 U			
CHLORODIBROMOMETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
CHLOROETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
CHLOROFORM						4.5 U	4.4 U	4.3 U		4.7 U			
CHLOROMETHANE						4.5 U	4.4 U	4.3 U		4.7 U			
CIS-1,2-DICHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			
CIS-1,3-DICHLOROPROPENE						4.5 U	4.4 U	4.3 U		4.7 U			
ETHYLBENZENE						4.5 U	4.4 U	4.3 U		4.7 U			
M+P-XYLENES						1.3 J	3.8 J	6.3		4.7 U			
METHYLENE CHLORIDE						23 U	22 U	21 U		24 U			
STYRENE						4.5 U	4.4 U	4.3 U		4.7 U			
TETRACHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			
TOLUENE						1.1 J	3.8 J	6.5		4.7 U			
TOTAL 1,2-DICHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			
TOTAL XYLENES						1.3 J	3.8 J	6.3		4.7 U			
TRANS-1,2-DICHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
TRANS-1,3-DICHLOROPROPENE						4.5 U	4.4 U	4.3 U		4.7 U			
TRICHLOROETHENE						4.5 U	4.4 U	4.3 U		4.7 U			
VINYL CHLORIDE						4.5 U	4.4 U	4.3 U		4.7 U			
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS													
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS													
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS													
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER													
O-XYLENE						0.67 J	1.74 J	2.8 J		4.7 U			
TOTAL XYLENES						0.67 J	1.74 J	2.8 J		4.7 U			
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE						260 U	265 U	270 U		260 U			
2,2'-OXYBIS(1-CHLOROPROPANE)						260 UJ	265 UJ	270 U		260 U			
2,4,5-TRICHLOROPHENOL						260 U	265 U	270 U		260 U			
2,4,6-TRICHLOROPHENOL						260 U	265 U	270 U		260 U			
2,4-DICHLOROPHENOL						260 U	265 U	270 U		260 U			
2,4-DIMETHYLPHENOL						260 U	265 U	270 U		260 U			
2,4-DINITROPHENOL						520 U	525 U	530 U		530 U			
2,4-DINITROTOLUENE						260 U	265 U	270 U		260 U			
2,6-DINITROTOLUENE						260 U	265 U	270 U		260 U			
2-CHLORONAPHTHALENE						260 U	265 U	270 U		260 U			
2-CHLOROPHENOL						260 U	265 U	270 U		260 U			
2-METHYLNAPHTHALENE						220 J	165 J	110 J		260 U			
2-METHYLPHENOL						260 U	265 U	270 U		260 U			
2-NITROANILINE						520 U	525 U	530 U		530 U			
2-NITROPHENOL						260 U	265 U	270 U		260 U			
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE						260 U	265 U	270 U		260 U			
3-NITROANILINE						520 U	525 U	530 U		530 U			
4,6-DINITRO-2-METHYLPHENOL						520 U	525 U	530 U		530 U			
4-BROMOPHENYL PHENYL ETHER						260 U	265 U	270 U		260 U			
4-CHLORO-3-METHYLPHENOL						520 U	525 U	530 U		530 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
4-CHLOROANILINE						260 U	265 U	270 U		260 U			
4-CHLOROPHENYL PHENYL ETHER						260 U	265 U	270 U		260 U			
4-METHYLPHENOL						260 U	265 U	270 U		260 U			
4-NITROANILINE						520 U	525 U	530 U		530 U			
4-NITROPHENOL						520 U	525 U	530 U		530 U			
ACENAPHTHENE						260 U	260 U	260 U		260 U			
ACENAPHTHYLENE						260 U	260 U	260 U		260 U			
ANTHRACENE						260 U	260 U	260 U		260 U			
BAP EQUIVALENT-HALFND	391					136 J	114 J	92.8 J		83.6 J	124		
BAP EQUIVALENT-POS	391					136 J	114 J	92.8 J		73.1 J	124		
BENZO(A)ANTHRACENE						77 J	78 J	79 J		59 J			
BENZO(A)PYRENE	330					66 J	63.5 J	61 J		56 J	100		
BENZO(B)FLUORANTHENE						130 J	120 J	110 J		70 J			
BENZO(G,H,I)PERYLENE						90 J	68.5 J	47 J		260 U			
BENZO(K)FLUORANTHENE						65 J	56.5 J	48 J		34 J			
BIS(2-CHLOROETHOXY)METHANE						260 U	265 U	270 U		260 U			
BIS(2-CHLOROETHYL)ETHER						260 U	265 U	270 U		260 U			
BIS(2-ETHYLHEXYL)PHTHALATE						260 U	265 U	270 U		260 U			
BUTYL BENZYL PHTHALATE						260 U	265 U	270 U		260 U			
CARBAZOLE						260 U	265 U	270 U		260 U			
CHRYSENE						86 J	77 J	68 J		58 J			
DIBENZO(A,H)ANTHRACENE	61					40 J	23.3 J	6.6 J		21 U	24		
DIBENZOFURAN						260 U	265 U	270 U		260 U			
DIETHYL PHTHALATE						260 U	265 U	270 U		260 U			
DIMETHYL PHTHALATE						260 U	265 U	270 U		260 U			
DI-N-BUTYL PHTHALATE						260 U	265 U	270 U		260 U			
DI-N-OCTYL PHTHALATE						260 U	265 U	270 U		260 U			
FLUORANTHENE						150 J	150 J	150 J		130 J			
FLUORENE						260 U	260 U	260 U		260 U			
HEXACHLOROBENZENE						260 U	265 U	270 U		260 U			
HEXACHLOROBUTADIENE						260 U	265 U	270 U		260 U			
HEXACHLOROCYCLOPENTADIENE						260 U	265 U	270 U		260 U			
HEXACHLOROETHANE						260 U	265 U	270 U		260 U			
INDENO(1,2,3-CD)PYRENE						87 J	72.5 J	58 J		38 J			
ISOPHORONE						260 U	265 U	270 U		260 U			
NAPHTHALENE						140 J	130 J	120 EB		260 U			
NITROBENZENE						260 U	265 U	270 U		260 U			
N-NITROSO-DI-N-PROPYLAMINE						260 U	265 U	270 U		260 U			
N-NITROSODIPHENYLAMINE						260 U	265 U	270 U		260 U			

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
PENTACHLOROPHENOL						11 U	11 U	11 U		530 U			
PHENANTHRENE						62 J	53 J	44 J		85 J			
PHENOL						260 U	265 U	270 U		260 U			
PYRENE						160 J	155 J	150 J		100 J			
TOTAL PAHS	391					1370 J	1210 J	1050 J		630 J	124		
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD						1.7 U	1.7 U			1.6 U			
4,4'-DDE						1.7 U	1.7 U			1.6 U			
4,4'-DDT						1.7 U	1.7 U			1.6 U			
ALDRIN						0.85 U	0.85 U			0.82 U			
ALPHA-BHC						0.85 U	0.85 U			0.82 U			
ALPHA-CHLORDANE						64 J	64 J			0.82 U			
AROCLOR-1016	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1221	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1232	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1242	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1248	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1254	26 U				26 U	27 U	26.5 U	26 U	25 U	26 U	26 U	26 U	28 U
AROCLOR-1260	170				17 J	230	215	200	170	49	1000 J	1500	12 J
BETA-BHC						0.85 U	0.85 U			0.82 U			
DELTA-BHC						0.85 U	0.85 U			0.82 U			
DIELDRIN						1.7 U	1.7 U			1.6 U			
ENDOSULFAN I						0.85 U	0.85 U			0.82 U			
ENDOSULFAN II						1.7 U	1.7 U			1.6 U			
ENDOSULFAN SULFATE						1.7 U	1.7 U			1.6 U			
ENDRIN						1.7 U	1.7 U			1.6 U			
ENDRIN ALDEHYDE						1.7 U	1.7 U			1.6 U			
ENDRIN KETONE						1.7 U	1.7 U			1.6 U			
GAMMA-BHC (LINDANE)						0.85 U	0.85 U			0.82 U			
GAMMA-CHLORDANE						52 J	52 J			0.82 U			
HEPTACHLOR						0.85 U	0.85 U			0.82 U			
HEPTACHLOR EPOXIDE						0.85 U	0.85 U			0.82 U			
METHOXYCHLOR						8.5 U	8.5 U			8.2 U			
TOTAL AROCLOR	170				17 J	230	215	200	170	49	1000 J	1500	12 J
TOXAPHENE						27 U	27 U			26 U			
HERBICIDES (UG/KG)													
2,4,5-T						21 U	21 U	21 U					
2,4,5-TP (SILVEX)						21 U	21 U	21 U					
2,4-D						85 U	85 U	85 U					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
2,4-DB						85 U	85 U	85 U					
DALAPON						43 U	42.5 U	42 U					
DICAMBA						43 U	42.5 U	42 U					
DICHLOROPROP						85 U	85 U	85 U					
DINOSEB						13 U	13 U	13 U					
MCPA						8500 U	8500 U	8500 U					
MCPP						8500 U	8500 U	8500 U					
METALS (MG/KG)													
ALUMINUM						4900 J	4450 J	4000 J		2600 J			
ANTIMONY						0.92	0.775 J	0.63 J		0.33 J			
ARSENIC						3.7	4.6	5.5		5.2			
BARIUM						23 J	15.8 J	17 U		11 U			
BERYLLIUM						0.35 U	0.355 U	0.36 U		0.29 U			
CADMIUM						0.35 J	0.32 J	0.29 J		0.19 J			
CALCIUM						600	515	430		140 U			
CHROMIUM						9.6	8.85	8.1		6			
COBALT						2.8 J	2 J	2.4 U		1.7 U			
COPPER						8	8.35	8.7		2.4 U			
IRON						9600	10300	11000		8800			
LEAD						45	36	27		6.4			
MAGNESIUM						1100	1010	920		530			
MANGANESE						100	97	94		60			
MERCURY						0.017 J	0.014 J	0.011 J		0.0066 J			
NICKEL						5.2	5.35	5.5		3.9 J			
POTASSIUM						540 J	490 J	440 J		450 J			
SELENIUM						0.62 U	0.645 U	0.67 U		0.62 J			
SILVER						0.12 UJ	0.125 UJ	0.13 UJ		0.13 UJ			
SODIUM						69 U	64 U	59 U		51 U			
THALLIUM						0.62 UJ	0.645 UJ	0.67 UJ		0.21 J			
VANADIUM						18	19	20		17			
ZINC						32	29	26		18			
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	4.2				4.6	6.5	6.45	6.4	5.9	6.4	7.2	5	13.8
PERCENT SOLIDS						93.9	94	94.1					
TOTAL SOLIDS													
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE						0.93 U	0.94 U	0.95 U		1 U			
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU14	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326
SAMPLE ID	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20110809	20110809	20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716
TOP DEPTH	0.5	0	0	0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5
BOTTOM DEPTH	1	2	2	2	0.5	1	1	1	0.5	1	1	1.5	2
C11-C22 AROMATICS						52000 U	52000 U	52000 U		52000 U			
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS						12000 J	11500 J	11000 J		52000 U			
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS						19000 J	22500 J	26000 J		52000 U			
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS													
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD		470	384	299									
1,2,3,4,6,7,8,9-OCDF		38.5 J	30.2 J	21.9 J									
1,2,3,4,6,7,8-HPCDD		40.3	33.6	26.8									
1,2,3,4,6,7,8-HPCDF		16	12.9	9.85									
1,2,3,4,7,8,9-HPCDF		1.4 J	1.12 J	0.848 J									
1,2,3,4,7,8-HXCDD		0.379 J	0.374 J	0.368 J									
1,2,3,4,7,8-HXCDF		1.8 J	1.42 J	1.05 J									
1,2,3,6,7,8-HXCDD		1.86 J	1.47 J	1.08 J									
1,2,3,6,7,8-HXCDF		1.76 J	1.4 J	1.05 J									
1,2,3,7,8,9-HXCDD		1.14 J	0.934 J	0.728 J									
1,2,3,7,8,9-HXCDF		0.974 U	1.02 U	1.07 U									
1,2,3,7,8-PECDD		0.587 J	0.954 J	1.32 J									
1,2,3,7,8-PECDF		0.427 J	0.338 J	0.248 J									
2,3,4,6,7,8-HXCDF		3.27	2.82 J	2.38 J									
2,3,4,7,8-PECDF		4.63	3.8	2.98									
2,3,7,8-TCDD		0.222 U	0.218 U	0.214 U									
2,3,7,8-TCDF		0.445 U	0.382 U	0.318 U									
TEQ		3.74 J	3.55 J	3.36 J									
TEQ HALFND		3.92 J	3.72 J	3.53 J									
TOTAL HPCDD		96.4	79	61.7									
TOTAL HPCDF		45.6	36.4	27.3									
TOTAL HXCDD		12.9 J	10.6 J	8.39 J									
TOTAL HXCDF		38	31.6 J	25.3 J									
TOTAL PECDD		3.63 J	3.5 J	3.36 J									
TOTAL PECDF		41.1 J	34.2 J	27.3 J									
TOTAL TCDD		2.59 J	1.73 J	0.877 J									
TOTAL TCDF		13.2 J	11.5 J	9.73 J									

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE												5.7 U	
1,1,2,2-TETRACHLOROETHANE												5.7 U	
1,1,2-TRICHLOROETHANE												5.7 U	
1,1-DICHLOROETHANE												5.7 U	
1,1-DICHLOROETHENE												5.7 U	
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE												5.7 UJ	
1,2-DICHLOROETHANE												5.7 U	
1,2-DICHLOROPROPANE												5.7 U	
1,3-DICHLOROBENZENE												5.7 UJ	
1,4-DICHLOROBENZENE												5.7 UJ	
2-BUTANONE												23 UJ	
2-HEXANONE												23 UJ	
4-METHYL-2-PENTANONE												23 UJ	
ACETONE												5.9 J	
BENZENE												5.7 U	
BROMODICHLOROMETHANE												5.7 U	
BROMOFORM												5.7 UJ	
BROMOMETHANE												11 UJ	
CARBON DISULFIDE												5.7 U	
CARBON TETRACHLORIDE												5.7 U	
CHLOROBENZENE												5.7 U	
CHLORODIBROMOMETHANE												5.7 U	
CHLOROETHANE												11 U	
CHLOROFORM												5.7 U	
CHLOROMETHANE												11 U	
CIS-1,2-DICHLOROETHENE													
CIS-1,3-DICHLOROPROPENE												5.7 U	
ETHYLBENZENE												5.7 U	
M+P-XYLENES													
METHYLENE CHLORIDE												5.7 U	
STYRENE												5.7 U	
TETRACHLOROETHENE												5.7 U	
TOLUENE												5.7 U	
TOTAL 1,2-DICHLOROETHENE												5.7 U	
TOTAL XYLENES												5.7 U	
TRANS-1,2-DICHLOROETHENE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
TRANS-1,3-DICHLOROPROPENE												5.7 U	
TRICHLOROETHENE												5.7 U	
VINYL CHLORIDE												11 U	
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS													
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS													
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS													
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER													
O-XYLENE													
TOTAL XYLENES													
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE												360 U	
2,2'-OXYBIS(1-CHLOROPROPANE)												360 U	
2,4,5-TRICHLOROPHENOL												1800 U	
2,4,6-TRICHLOROPHENOL												360 U	
2,4-DICHLOROPHENOL												360 U	
2,4-DIMETHYLPHENOL												360 U	
2,4-DINITROPHENOL												1800 U	
2,4-DINITROTOLUENE												360 U	
2,6-DINITROTOLUENE												360 U	
2-CHLORONAPHTHALENE												360 U	
2-CHLOROPHENOL												360 U	
2-METHYLNAPHTHALENE										100 UJ	19 UJ	360 U	
2-METHYLPHENOL												360 U	
2-NITROANILINE												1800 U	
2-NITROPHENOL												360 U	
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE												360 UJ	
3-NITROANILINE												1800 U	
4,6-DINITRO-2-METHYLPHENOL												260 U	
4-BROMOPHENYL PHENYL ETHER												360 U	
4-CHLORO-3-METHYLPHENOL												360 U	

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
4-CHLOROANILINE												360 U	
4-CHLOROPHENYL PHENYL ETHER												360 U	
4-METHYLPHENOL												360 U	
4-NITROANILINE												1800 U	
4-NITROPHENOL												1800 U	
ACENAPHTHENE										48 J	22 J	360 U	
ACENAPHTHYLENE										100 UJ	9 J	360 U	
ANTHRACENE										110 J	60 J	360 U	
BAP EQUIVALENT-HALFND										495 J	318 J	87.7 J	
BAP EQUIVALENT-POS										385 J	318 J	51.7 J	
BENZO(A)ANTHRACENE										410 J	200 J	360 UJ	
BENZO(A)PYRENE										300 J	220 J	34 J	
BENZO(B)FLUORANTHENE										420 J	340 J	100 J	
BENZO(G,H,I)PERYLENE										100 J	130 J	360 UJ	
BENZO(K)FLUORANTHENE										190 J	130 J	100 J	
BIS(2-CHLOROETHOXY)METHANE												360 U	
BIS(2-CHLOROETHYL)ETHER												360 U	
BIS(2-ETHYLHEXYL)PHTHALATE												360 UJ	
BUTYL BENZYL PHTHALATE												360 UJ	
CARBAZOLE												360 U	
CHRYSENE										410 J	250 J	92 J	
DIBENZO(A,H)ANTHRACENE										200 UJ	30 J	6.6 J	
DIBENZOFURAN												360 U	
DIETHYL PHTHALATE												360 U	
DIMETHYL PHTHALATE												360 U	
DI-N-BUTYL PHTHALATE												360 U	
DI-N-OCTYL PHTHALATE												360 UJ	
FLUORANTHENE										830 J	450 J	140 J	
FLUORENE										60 J	25 J	360 U	
HEXACHLOROBENZENE												360 U	
HEXACHLOROBUTADIENE												360 U	
HEXACHLOROCYCLOPENTADIENE												360 U	
HEXACHLOROETHANE												360 U	
INDENO(1,2,3-CD)PYRENE										200 UJ	120 J	360 UJ	
ISOPHORONE												360 U	
NAPHTHALENE										100 UJ	19 UJ	360 U	
NITROBENZENE												360 U	
N-NITROSO-DI-N-PROPYLAMINE												110 U	
N-NITROSODIPHENYLAMINE												360 U	

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
PENTACHLOROPHENOL												1800 U	
PHENANTHRENE										480 J	290 J	91 J	
PHENOL												360 U	
PYRENE										640 J	400 J	170 J	
TOTAL PAHS										4000 J	2680 J	734 J	
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD												3.7 U	
4,4'-DDE												11	
4,4'-DDT												16 J	
ALDRIN												1.8 U	
ALPHA-BHC												1.8 U	
ALPHA-CHLORDANE												42 J	
AROCLOR-1016	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	37 U	35 U
AROCLOR-1221	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	73 U	70 U
AROCLOR-1232	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	37 U	35 U
AROCLOR-1242	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	37 U	35 U
AROCLOR-1248	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	37 U	35 U
AROCLOR-1254	27 U	26 U	26 U	26 U	26 U	28 U	28 U	26 U	26 U	7.9 U	75 U	37 U	35 U
AROCLOR-1260	2900	14 J	72	500	1200	600	28 U	330	24 J	300	1800	480 J	120
BETA-BHC												1.8 U	
DELTA-BHC												1.8 U	
DIELDRIN												3.7 U	
ENDOSULFAN I												1.8 U	
ENDOSULFAN II												3.7 U	
ENDOSULFAN SULFATE												3.7 U	
ENDRIN												4.9	
ENDRIN ALDEHYDE												18 J	
ENDRIN KETONE												3.7 U	
GAMMA-BHC (LINDANE)												1.8 U	
GAMMA-CHLORDANE												41 J	
HEPTACHLOR												3.5 J	
HEPTACHLOR EPOXIDE												8.4 J	
METHOXYCHLOR												18 U	
TOTAL AROCLOR	2900	14 J	72	500	1200	600	28 U	330	24 J	300	1800	480 J	120
TOXAPHENE												180 U	
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM										10000	6100	5110 J	
ANTIMONY										0.15 U	0.71	0.21 U	
ARSENIC										1.3	1.2	2.1	
BARIUM										21	21	15.8	
BERYLLIUM										0.29 U	0.43	0.28 J	
CADMIUM										0.55	0.57	0.24 U	
CALCIUM										810 J	1100 J	725 J	
CHROMIUM										13	12	7.7	
COBALT										2.8	2.8	2.2 J	
COPPER										7	8.3	4.5	
IRON										9900	15000	9160 J	
LEAD										56 J	69 J	17.3 J	
MAGNESIUM										1700 J	1800 J	995 J	
MANGANESE										160 J	390 J	96.7 J	
MERCURY										0.031 J	0.011 J	0.05 U	
NICKEL										7.6	6.9	3.7 J	
POTASSIUM										240	290	246 J	
SELENIUM										0.98	1.1	0.33 U	
SILVER										0.06 J	0.087 J	0.28 UJ	
SODIUM										49 J	44 J	43.6	
THALLIUM										0.082 U	0.07 U	0.34 U	
VANADIUM										25	20	14.9 J	
ZINC										36	70	30.7 J	
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	6.3	7	5.8	7.7	4.5	10	11.6	5.6	5.6	17	11		
PERCENT SOLIDS													
TOTAL SOLIDS												90	
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE												0.23 U	
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18
LOCATION ID	SB07-327	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205
SAMPLE ID	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515
TOP DEPTH	1	1.5	0	1	0	1	1	0.5	0.5	0	0	0	0
BOTTOM DEPTH	1.5	2	1	2	1	2	1.5	1.5	1.5	2	2	1	1
C11-C22 AROMATICS												18000 U	
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ												18000 U	
C19-C36 ALIPHATICS												8700 U	
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS												6500 U	
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS													
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD													
1,2,3,4,6,7,8,9-OCDF													
1,2,3,4,6,7,8-HPCDD													
1,2,3,4,6,7,8-HPCDF													
1,2,3,4,7,8,9-HPCDF													
1,2,3,4,7,8-HXCDD													
1,2,3,4,7,8-HXCDF													
1,2,3,6,7,8-HXCDD													
1,2,3,6,7,8-HXCDF													
1,2,3,7,8,9-HXCDD													
1,2,3,7,8,9-HXCDF													
1,2,3,7,8-PECDD													
1,2,3,7,8-PECDF													
2,3,4,6,7,8-HXCDF													
2,3,4,7,8-PECDF													
2,3,7,8-TCDD													
2,3,7,8-TCDF													
TEQ													
TEQ HALFND													
TOTAL HPCDD													
TOTAL HPCDF													
TOTAL HXCDD													
TOTAL HXCDF													
TOTAL PECDD													
TOTAL PECDF													
TOTAL TCDD													
TOTAL TCDF													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE								4.8 UJ				5.3 U	5.2 U
1,1,2,2-TETRACHLOROETHANE								4.8 UJ				5.3 U	5.2 U
1,1,2-TRICHLOROETHANE								4.8 UJ				5.3 U	5.2 U
1,1-DICHLOROETHANE								4.8 UJ				5.3 U	5.2 U
1,1-DICHLOROETHENE								4.8 UJ				5.3 U	5.2 U
1,2-DIBROMO-3-CHLOROPROPANE								4.8 UJ					
1,2-DIBROMOETHANE								4.8 UJ					
1,2-DICHLOROBENZENE								260 U				5.3 UJ	5.2 UJ
1,2-DICHLOROETHANE								4.8 UJ				5.3 U	5.2 U
1,2-DICHLOROPROPANE								4.8 UJ				5.3 U	5.2 U
1,3-DICHLOROBENZENE								260 U				5.3 UJ	5.2 UJ
1,4-DICHLOROBENZENE								260 U				5.3 UJ	5.2 UJ
2-BUTANONE								24 UJ				21 U	21 U
2-HEXANONE								24 R				21 U	21 U
4-METHYL-2-PENTANONE								24 R				21 U	21 U
ACETONE								74 J				21 U	21 U
BENZENE		140 U		160 U		220 U		4.8 UJ	290 U	280 U	280 U	5.3 U	5.2 U
BROMODICHLOROMETHANE								4.8 UJ				5.3 U	5.2 U
BROMOFORM								4.8 UJ				5.3 U	5.2 U
BROMOMETHANE								4.8 UJ				11 U	10 U
CARBON DISULFIDE								4.8 UJ				5.3 U	5.2 U
CARBON TETRACHLORIDE								4.8 UJ				5.3 U	5.2 U
CHLOROBENZENE								4.8 UJ				5.3 U	5.2 U
CHLORODIBROMOMETHANE								4.8 UJ				5.3 U	5.2 U
CHLOROETHANE								4.8 UJ				11 U	10 U
CHLOROFORM								4.8 UJ				5.3 U	5.2 U
CHLOROMETHANE								4.8 UJ				11 UJ	10 UJ
CIS-1,2-DICHLOROETHENE								4.8 UJ					
CIS-1,3-DICHLOROPROPENE								4.8 UJ				5.3 U	5.2 U
ETHYLBENZENE		140 U		160 U		220 U		4.8 UJ	290 U	280 U	280 U	5.3 U	5.2 U
M+P-XYLENES								4.8 UJ					
METHYLENE CHLORIDE								24 UJ				5.3 U	5.2 U
STYRENE								4.8 UJ				5.3 U	5.2 U
TETRACHLOROETHENE								4.8 UJ				5.3 U	5.2 U
TOLUENE		140 U		160 U		220 U		4.8 UJ	880 U	840 U	840 U	5.3 U	1.3 J
TOTAL 1,2-DICHLOROETHENE								4.8 UJ				5.3 U	5.2 U
TOTAL XYLENES		140 U		160 U		220 U		4.8 UJ	1200 U	1100 U	1100 U	5.3 U	5.2 U
TRANS-1,2-DICHLOROETHENE								4.8 UJ					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
TRANS-1,3-DICHLOROPROPENE								4.8 UJ				5.3 U	5.2 U
TRICHLOROETHENE								4.8 UJ				5.3 U	5.2 U
VINYL CHLORIDE								4.8 UJ				11 U	10 U
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS		2800 U		6030		4400 U			295 U	280 U	280 U		
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ		2800 U		6030		4400 U							
C9-C10 AROMATICS		2800 U		3200 U		4400 U			590 U	560 U	3400		
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS		2800 U		3200 U		4400 U			29.5 UJ	28 UJ	480 J		
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ		2800 U		3200 U		4400 U							
METHYL TERT-BUTYL ETHER		140 U		160 U		220 U			880 U	840 U	840 U		
O-XYLENE		140 U		160 U		220 U		4.8 UJ	590 U	560 U	560 U		
TOTAL XYLENES		140 U		160 U		220 U		4.8 UJ	590 U	560 U	560 U		
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE		350 U		360 U		360 U		260 U				350 U	340 U
2,2'-OXYBIS(1-CHLOROPROPANE)		350 U		360 U		360 U		260 U				350 U	340 U
2,4,5-TRICHLOROPHENOL		1700 U		1800 U		1800 U		260 U				1800 U	1700 U
2,4,6-TRICHLOROPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
2,4-DICHLOROPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
2,4-DIMETHYLPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
2,4-DINITROPHENOL		1700 U		1800 UJ		1800 UJ		520 U				1800 U	1700 U
2,4-DINITROTOLUENE		350 U		360 U		360 U		260 U				350 U	340 U
2,6-DINITROTOLUENE		350 U		360 U		360 U		260 U				350 U	340 U
2-CHLORONAPHTHALENE		350 U		360 U		360 U		260 U				350 U	340 U
2-CHLOROPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
2-METHYLNAPHTHALENE	19 UJ	350 U		1040		2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	100 J
2-METHYLPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
2-NITROANILINE		1700 U		1800 U		1800 U		520 U				1800 U	1700 U
2-NITROPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE		350 U		360 UJ		360 UJ		260 U				350 U	340 UJ
3-NITROANILINE		1700 U		1800 U		1800 U		520 U				1800 U	1700 U
4,6-DINITRO-2-METHYLPHENOL		250 U		260 UJ		260 UJ		520 U				250 U	250 U
4-BROMOPHENYL PHENYL ETHER		350 U		360 UJ		360 UJ		260 U				350 U	340 U
4-CHLORO-3-METHYLPHENOL		350 U		360 U		360 U		520 U				350 U	340 U

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
4-CHLOROANILINE		350 U		360 U		360 U		260 U				350 U	340 U
4-CHLOROPHENYL PHENYL ETHER		350 U		360 U		360 U		260 U				350 U	340 U
4-METHYLPHENOL		350 U		360 U		360 U		260 U				350 U	340 U
4-NITROANILINE		1700 U		1800 U		1800 U		520 U				1800 U	1700 U
4-NITROPHENOL		1700 U		1800 U		1800 U		520 U				1800 U	1700 U
ACENAPHTHENE	19 UJ	350 U		360 U		2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U
ACENAPHTHYLENE	19 UJ	350 U		360 U		2.5 U	15 J	260 U	370 U	350 U	350 U	350 U	340 U
ANTHRACENE	19 UJ	350 U		360 UJ		2.5 U	35 J	260 U	370 U	350 U	350 U	350 U	340 U
BAP EQUIVALENT-HALFND	78.4 J	58.1 J		61.8 J		15 J	186 J	260 U	268 J	350 U	246 J	480 J	89.5 J
BAP EQUIVALENT-POS	58 J	2.6 J		4.7 J		14.6 J	154 J	260 U	43.8 J	350 U	54 J	480 J	87.8 J
BENZO(A)ANTHRACENE	48 J	350 U		360 UJ		2.5 U	110 J	260 U	370 U	350 U	39 J	280 J	78 J
BENZO(A)PYRENE	46 J	2.6 J		4.7 J		12 J	120 J	260 U	370 U	350 U	46 J	330 J	45 J
BENZO(B)FLUORANTHENE	69 J	350 U		360 UJ		2.5 U	220 J	260 U	370 U	350 U	36 J	440 J	170 J
BENZO(G,H,I)PERYLENE	27 J	350 U		360 UJ		2.5 U	59 J	50 J	140 J	350 U	40 J	200 J	87 J
BENZO(K)FLUORANTHENE	25 J	350 U		360 UJ		2.5 U	87 J	260 U	370 U	350 U	45 J	130 J	340 UJ
BIS(2-CHLOROETHOXY)METHANE		350 U		360 U		360 U		260 U				350 U	340 U
BIS(2-CHLOROETHYL)ETHER		350 U		360 U		360 U		260 U				350 U	340 U
BIS(2-ETHYLHEXYL)PHTHALATE		350 U		360 UJ		360 UJ		260 U				350 U	340 UJ
BUTYL BENZYL PHTHALATE		350 U		360 UJ		360 UJ		260 U				350 U	340 UJ
CARBAZOLE		350 U		360 UJ		360 UJ		260 U				350 U	340 U
CHRYSENE	52 J	350 U		360 UJ		2.5 U	140 J	260 U	370 U	350 U	49 J	320 J	120 J
DIBENZO(A,H)ANTHRACENE	37 UJ	2.1 U		2.2 U		2.6 J	59 UJ	260 U	36 J	350 U	350 U	57 J	7.9 J
DIBENZOFURAN		350 U		360 U		360 U		260 U				350 U	340 U
DIETHYL PHTHALATE		350 U		360 U		360 U		260 U				350 U	340 U
DIMETHYL PHTHALATE		350 U		360 U		360 U		260 U				350 U	340 U
DI-N-BUTYL PHTHALATE		350 U		360 UJ		360 UJ		260 U				350 U	340 U
DI-N-OCTYL PHTHALATE		350 U		360 UJ		360 UJ		260 U				350 UJ	340 UJ
FLUORANTHENE	74 J	350 U		360 UJ		2.5 U	280 J	260 U	370 U	350 U	67 J	550	100 J
FLUORENE	19 UJ	350 U		360 U		2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U
HEXACHLOROBENZENE		350 U		360 UJ		360 UJ		260 U				350 U	340 U
HEXACHLOROBUTADIENE		350 U		360 U		360 U		260 U				350 U	340 U
HEXACHLOROCYCLOPENTADIENE		350 U		360 U		360 U		260 U				350 U	340 U
HEXACHLOROETHANE		350 U		360 U		360 U		260 U				350 U	340 U
INDENO(1,2,3-CD)PYRENE	37 UJ	350 U		360 UJ		2.5 U	59 UJ	260 U	78 J	350 U	350 U	190 J	100 J
ISOPHORONE		350 U		360 U		360 U		260 U				350 U	340 U
NAPHTHALENE	19 UJ	140 U		160 U		2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U
NITROBENZENE		350 U		360 U		360 U		260 U				350 U	340 U
N-NITROSO-DI-N-PROPYLAMINE		100 U		110 U		110 U		260 U				100 U	100 U
N-NITROSODIPHENYLAMINE		350 U		360 UJ		360 UJ		260 U				350 U	340 U

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
PENTACHLOROPHENOL		1700 U		1800 UJ		1800 UJ		520 U				1800 U	1700 U
PHENANTHRENE	27 J	350 U		360 UJ		2.5 U	170 J	260 U	370 U	350 U	36 J	400	76 J
PHENOL		350 U		360 U		360 U		260 U				350 U	340 U
PYRENE	97 J	350 U		360 UJ		74 J	340 J	260 U	370 U	350 U	59 J	740	190 J
TOTAL PAHS	465 J	2.6 J		1040 J		88.6 J	1580 J	50 J	254 J	350 U	417 J	3640 J	1070 J
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD								1.6 U				3.5 U	3.4 U
4,4'-DDE								1.6 U				3.5 U	3.4 U
4,4'-DDT								3.2 J				3.5 U	3.4 J
ALDRIN								0.81 U				1.8 U	1.7 U
ALPHA-BHC								0.81 U				1.8 U	1.7 U
ALPHA-CHLORDANE								0.81 U				1.8 U	1.7 U
AROCLOR-1016	7.4 U		7.6 U		8.2 U		7.7 U	25 U				35 U	34 U
AROCLOR-1221	7.4 U		7.6 U		8.2 U		7.7 U	25 U				70 U	69 U
AROCLOR-1232	7.4 U		7.6 U		8.2 U		7.7 U	25 U				35 U	34 U
AROCLOR-1242	7.4 U		7.6 U		8.2 U		7.7 U	25 U				35 U	34 U
AROCLOR-1248	7.4 U		7.6 U		8.2 U		7.7 U	25 U				35 U	34 U
AROCLOR-1254	7.4 U		7.6 U		8.2 U		7.7 U	25 U				35 U	34 U
AROCLOR-1260	7.4 U		7.6 U		10 J		8 J	31 J				35 U	34 U
BETA-BHC								0.81 U				1.8 U	1.7 U
DELTA-BHC								0.81 UJ				1.8 U	1.7 U
DIELDRIN								1.6 U				3.5 U	3.4 U
ENDOSULFAN I								0.81 U				1.8 U	1.7 U
ENDOSULFAN II								1.6 U				3.5 U	3.4 U
ENDOSULFAN SULFATE								1.6 U				3.5 U	3.4 U
ENDRIN								1.6 U				3.5 U	3.4 U
ENDRIN ALDEHYDE								1.6 U				3.5 U	3.4 U
ENDRIN KETONE								1.6 U				3.5 U	3.4 U
GAMMA-BHC (LINDANE)								0.81 U				1.8 U	1.7 U
GAMMA-CHLORDANE								0.81 U				1.8 U	1.7 U
HEPTACHLOR								0.81 U				1.8 U	1.7 U
HEPTACHLOR EPOXIDE								0.81 U				6.2 J	1.7 U
METHOXYCHLOR								8.1 U				18 U	17 U
TOTAL AROCLOR	7.4 U		7.6 U		10 J		8 J	31 J				40 U	39 U
TOXAPHENE								25 U				180 U	170 U
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM	7400	5280 J		6620 J		7330 J	6800	5600				7620 J	7100 J
ANTIMONY	0.097 U	0.18 UJ		0.21 J		0.2 UJ	0.22 U	0.6 U				0.18 UJ	0.2 UJ
ARSENIC	5.9	1.8 J		1.9 J		1.9 J	2.2	3 J				3 J	2.1
BARIUM	21	9 J		14.6 J		16.9 J	19	12 J				23.5 J	12.2 J
BERYLLIUM	0.34	0.31 J		0.35 J		0.38 J	0.38	0.39 J				0.5	0.33 J
CADMIUM	0.21	0.21 U		0.23 U		0.23 J	0.44	0.028 J				0.21 UJ	0.23 U
CALCIUM	810	653 J		702 J		759 J	1500	440 U				3780	1000 J
CHROMIUM	8.9	6.1 J		7.2 J		8	7.5	6.8				12	9.1 J
COBALT	3.9	4.6		4		3.4	3.4	3.9 J				4.5	4.6
COPPER	8.5	6.3		5		6	6.6 J	6.7				10.9	10.7
IRON	10000	11500 J		10700 J		11900 J	12000	11000				13200 J	13100 J
LEAD	27	8 J		16.5 J		29.8 J	26	10				28.9	8.7 J
MAGNESIUM	1700	2170 J		1660 J		1710 J	1700	1800				2560 J	2790 J
MANGANESE	180 J	357 J		191 J		185 J	150 J	210				156 J	233 J
MERCURY	0.031	0.04 U		0.05 U		0.05 U	0.023 J	0.0098 J					0.04 UJ
NICKEL	8	7.1 J		5.5 J		6.5 J	8.7	6.3				11.6	7.8
POTASSIUM	240 J	260 J		240 U		314 J	310 J	300 U				596 J	286
SELENIUM	0.58 U	0.29 UJ		0.32 UJ		0.32 UJ	0.29 J	0.62 U				0.29 UJ	0.32 U
SILVER	0.084 U	0.07 U		0.07 U		0.08 U	0.06 J	0.12 R				0.07 UJ	0.27 UJ
SODIUM	38 J	40.9 U		36.1 J		46.5 J	29 J	62 U				77.5 J	44.6
THALLIUM	0.078 U	0.29 UJ		0.32 UJ		0.32 UJ	0.11 U	0.62 UJ				0.3 U	0.32 U
VANADIUM	15	13 J		16 J		21.6 J	20	20				39.8 J	13.8 J
ZINC	35	29.2 J		26.3 J		29.9 J	40	40				55.6 J	33.8 J
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	11		15		4		15	4.8					
PERCENT SOLIDS													
TOTAL SOLIDS		97										95	93
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE		0.21 U		0.21 U		0.23 U		1 U				0.22 U	0.21 U
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU19	EU20	EU21	EU21	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011
SAMPLE ID	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110811	19981216	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209
TOP DEPTH	0	0	0	0	0	0	0	0	1	1	1	0	0
BOTTOM DEPTH	2	1	2	1	2	1	2	1	3	3	2.2	1	1
C11-C22 AROMATICS		15000 U		736000		85 U			65000	9000 U	9100 U	24000	17000 U
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ		15000 U		737000		85 U							
C19-C36 ALIPHATICS		7200 U		7800 U		68200			1250	21 U	21.5 U	52000	18000
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS		5400 U		5800 U		6400 U			2500	160 U	160 U	8900 J	8200 J
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS												85000 J	30000 U
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD								47				313.74 R	165.04 U
1,2,3,4,6,7,8,9-OCDF								0.41 U				28.27 R	15.99 J
1,2,3,4,6,7,8-HPCDD								1.7 U				13.07 R	7.36 U
1,2,3,4,6,7,8-HPCDF								0.47 U				17.49 R	8.86
1,2,3,4,7,8,9-HPCDF								0.25 U				0.64 R	0.35
1,2,3,4,7,8-HXCDD								0.3 U				0.21 R	0.11 J
1,2,3,4,7,8-HXCDF								0.2 U				4.46 R	2.1
1,2,3,6,7,8-HXCDD								0.28 U				0.56 R	0.24 J
1,2,3,6,7,8-HXCDF								0.19 U				1.48 R	0.69
1,2,3,7,8,9-HXCDD								0.83 U				0.52 R	0.17 J
1,2,3,7,8,9-HXCDF								0.23 U				0.1 R	0.17 U
1,2,3,7,8-PECDD								0.47 U				0.16 R	0.09 U
1,2,3,7,8-PECDF								0.33 U				0.56 R	0.26
2,3,4,6,7,8-HXCDF								0.27 U				1.22 R	0.62 J
2,3,4,7,8-PECDF								0.33 U				0.8 R	0.34
2,3,7,8-TCDD								0.33 U				6.85 R	0.92
2,3,7,8-TCDF								0.33 U				0.31 R	0.23 J
TEQ								0.0141				6.85 R	1.54
TEQ HALFND								0.612				6.85 R	1.65
TOTAL HPCDD								1.9 U				23.31	12.78
TOTAL HPCDF								0.47 U				25.46	12
TOTAL HXCDD								4.7				4.2	1.33
TOTAL HXCDF								0.67 U				31.51	12.13
TOTAL PECDD								3.2				1.59	0.34
TOTAL PECDF								1.3 U				34.62	16.29
TOTAL TCDD								18				7.15	0.92
TOTAL TCDF								97				12.18	6.04

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE													
1,1,2,2-TETRACHLOROETHANE													
1,1,2-TRICHLOROETHANE													
1,1-DICHLOROETHANE													
1,1-DICHLOROETHENE													
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE													
1,2-DICHLOROETHANE													
1,2-DICHLOROPROPANE													
1,3-DICHLOROBENZENE													
1,4-DICHLOROBENZENE													
2-BUTANONE													
2-HEXANONE													
4-METHYL-2-PENTANONE													
ACETONE													
BENZENE		310 U	270 U										
BROMODICHLOROMETHANE													
BROMOFORM													
BROMOMETHANE													
CARBON DISULFIDE													
CARBON TETRACHLORIDE													
CHLOROBENZENE													
CHLORODIBROMOMETHANE													
CHLOROETHANE													
CHLOROFORM													
CHLOROMETHANE													
CIS-1,2-DICHLOROETHENE													
CIS-1,3-DICHLOROPROPENE													
ETHYLBENZENE		310 U	270 U										
M+P-XYLENES													
METHYLENE CHLORIDE													
STYRENE													
TETRACHLOROETHENE													
TOLUENE		940 U	820 U										
TOTAL 1,2-DICHLOROETHENE													
TOTAL XYLENES		1200 U	1100 U										
TRANS-1,2-DICHLOROETHENE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
TRANS-1,3-DICHLOROPROPENE													
TRICHLOROETHENE													
VINYL CHLORIDE													
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS		315 U	270 U										
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS		630 U	540 U										
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS		31.5 U	27 U										
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER		940 U	820 U										
O-XYLENE		630 U	540 U										
TOTAL XYLENES		630 U	540 U										
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE													
2,2'-OXYBIS(1-CHLOROPROPANE)													
2,4,5-TRICHLOROPHENOL													
2,4,6-TRICHLOROPHENOL													
2,4-DICHLOROPHENOL													
2,4-DIMETHYLPHENOL													
2,4-DINITROPHENOL													
2,4-DINITROTOLUENE													
2,6-DINITROTOLUENE													
2-CHLORONAPHTHALENE													
2-CHLOROPHENOL													
2-METHYLNAPHTHALENE		390 U	520 U		22 U	21 U	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U
2-METHYLPHENOL													
2-NITROANILINE													
2-NITROPHENOL													
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE													
3-NITROANILINE													
4,6-DINITRO-2-METHYLPHENOL													
4-BROMOPHENYL PHENYL ETHER													
4-CHLORO-3-METHYLPHENOL													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
4-CHLOROANILINE													
4-CHLOROPHENYL PHENYL ETHER													
4-METHYLPHENOL													
4-NITROANILINE													
4-NITROPHENOL													
ACENAPHTHENE		390 U	520 U		22 U	21 U	22 U	5.4 J	16.2 J	27	22 U	21 U	24 U
ACENAPHTHYLENE		390 U	520 U		22 U	21 U	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U
ANTHRACENE		390 U	520 U		22 U	21 U	22 U	19 J	48 J	77	22 U	5.5 J	8.4 J
BAP EQUIVALENT-HALFND		390 U	520 U		22 U	21 U	22 U	75.2 J	141 J	206 J	22.5 J	46.1 J	40.7 J
BAP EQUIVALENT-POS		390 U	520 U		22 U	21 U	22 U	75.2 J	141 J	206 J	11.4 J	46.1 J	28.7 J
BENZO(A)ANTHRACENE		390 U	520 U		22 U	21 U	22 U	54	112	170	9.3 J	25	24
BENZO(A)PYRENE		390 U	520 U		22 U	21 U	22 U	50	95	140	8.7 J	29	21 J
BENZO(B)FLUORANTHENE		390 U	520 U		22 U	21 U	22 U	64	117	170	11 J	46	36
BENZO(G,H,I)PERYLENE		390 U	520 U		22 U	21 U	22 U	34	57.5	81	22 U	24	15 J
BENZO(K)FLUORANTHENE		390 U	520 U		22 U	21 U	22 U	25	44.5	64	22 U	17 J	12 J
BIS(2-CHLOROETHOXY)METHANE													
BIS(2-CHLOROETHYL)ETHER													
BIS(2-ETHYLHEXYL)PHTHALATE													
BUTYL BENZYL PHTHALATE													
CARBAZOLE													
CHRYSENE		390 U	520 U		22 U	21 U	22 U	53	102	150	9 J	31	28
DIBENZO(A,H)ANTHRACENE		390 U	520 U		22 U	21 U	22 U	9.2 J	15.1 J	21 J	22 U	7 J	24 U
DIBENZOFURAN													
DIETHYL PHTHALATE													
DIMETHYL PHTHALATE													
DI-N-BUTYL PHTHALATE													
DI-N-OCTYL PHTHALATE													
FLUORANTHENE		390 U	520 U		22 U	21 U	22 U	110	235	360	17 J	52	70
FLUORENE		390 U	520 U		22 U	21 U	22 U	22 U	20.5	30	22 U	21 U	24 U
HEXACHLOROBENZENE													
HEXACHLOROBUTADIENE													
HEXACHLOROCYCLOPENTADIENE													
HEXACHLOROETHANE													
INDENO(1,2,3-CD)PYRENE		390 U	520 U		22 U	21 U	22 U	39	68.5	98	6.3 J	28	16 J
ISOPHORONE													
NAPHTHALENE		390 U	520 U		22 U	21 U	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U
NITROBENZENE													
N-NITROSO-DI-N-PROPYLAMINE													
N-NITROSODIPHENYLAMINE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
PENTACHLOROPHENOL													
PHENANTHRENE		390 U	520 U		22 U	21 U	22 U	64	167	270	22 U	17 J	48
PHENOL													
PYRENE		390 U	2100 J		22 U	21 U	22 U	88	179	270	13 J	43	55
TOTAL PAHS		390 U	2100 J		22 U	21 U	22 U	615 J	1270 J	1930 J	74.3 J	324 J	333 J
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD													
4,4'-DDE													
4,4'-DDT													
ALDRIN													
ALPHA-BHC													
ALPHA-CHLORDANE													
AROCLOR-1016				7.3 U									
AROCLOR-1221				7.3 U									
AROCLOR-1232				7.3 U									
AROCLOR-1242				7.3 U									
AROCLOR-1248				7.3 U									
AROCLOR-1254				7.3 U									
AROCLOR-1260				7.3 U									
BETA-BHC													
DELTA-BHC													
DIELDRIN													
ENDOSULFAN I													
ENDOSULFAN II													
ENDOSULFAN SULFATE													
ENDRIN													
ENDRIN ALDEHYDE													
ENDRIN KETONE													
GAMMA-BHC (LINDANE)													
GAMMA-CHLORDANE													
HEPTACHLOR													
HEPTACHLOR EPOXIDE													
METHOXYCHLOR													
TOTAL AROCLOR				7.3 U									
TOXAPHENE													
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM				7100									
ANTIMONY				0.26 U									
ARSENIC				2.1									
BARIUM				19									
BERYLLIUM				0.33 U									
CADMIUM				0.18 U									
CALCIUM				870 J									
CHROMIUM				9.4									
COBALT				4.4									
COPPER				7.1									
IRON				14000									
LEAD				25 J									
MAGNESIUM				3100 J									
MANGANESE				140 J									
MERCURY				0.075									
NICKEL				16									
POTASSIUM				330									
SELENIUM				0.5 J									
SILVER				0.1 U									
SODIUM				37 J									
THALLIUM				0.075 U									
VANADIUM				33									
ZINC				57									
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	6.9			9	11.1	5.7	9.9	8.2	8.1	8	8.9	4.4	16.8
PERCENT SOLIDS													
TOTAL SOLIDS													
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE													
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU26	EU27	EU27	EU27	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20030716	19960805	19960805	20110810	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040311	20040929
TOP DEPTH	0	1	1	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	3	3	2	1	1	1	1	1	1	1	1	1
C11-C22 AROMATICS		10000 U	8800 U										
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS		24 U	21 U										
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS		180 U	155 U										
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS													
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD	32			544									
1,2,3,4,6,7,8,9-OCDF	57			7.14									
1,2,3,4,6,7,8-HPCDD	2 U			37.6									
1,2,3,4,6,7,8-HPCDF	32			5.42									
1,2,3,4,7,8,9-HPCDF	0.75 U			0.989 U									
1,2,3,4,7,8-HXCDD	0.21 U			0.344 J									
1,2,3,4,7,8-HXCDF	3.5 J			1.04 J									
1,2,3,6,7,8-HXCDD	0.21 U			1.06 J									
1,2,3,6,7,8-HXCDF	1.9 U			1.31 J									
1,2,3,7,8,9-HXCDD	0.2 U			0.735 J									
1,2,3,7,8,9-HXCDF	0.69 U			0.989 U									
1,2,3,7,8-PECDD	0.37 U			0.247 U									
1,2,3,7,8-PECDF	0.68 U			0.28 J									
2,3,4,6,7,8-HXCDF	0.98 U			2.83									
2,3,4,7,8-PECDF	0.62 U			4.04									
2,3,7,8-TCDD	4.2			0.367 UJ									
2,3,7,8-TCDF	0.71 U			0.659 J									
TEQ	4.9			2.61 J									
TEQ HALFND	5.44			2.98 J									
TOTAL HPCDD	2.2 U			80.2									
TOTAL HPCDF	35			11.9									
TOTAL HXCDD	0.59 U			9.93 J									
TOTAL HXCDF	18			28.6									
TOTAL PECDD	0.37 U			3.58 J									
TOTAL PECDF	11			39.8 J									
TOTAL TCDD	4.8			1.88 J									
TOTAL TCDF	7.9			12.8 J									

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE							6.6 R	5.8 U					
1,1,2,2-TETRACHLOROETHANE							6.6 R	5.8 U					
1,1,2-TRICHLOROETHANE							6.6 R	5.8 U					
1,1-DICHLOROETHANE							6.6 R	5.8 U					
1,1-DICHLOROETHENE							6.6 R	5.8 U					
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE							6.6 R	5.8 UJ					
1,2-DICHLOROETHANE							6.6 R	5.8 U					
1,2-DICHLOROPROPANE							6.6 R	5.8 U					
1,3-DICHLOROBENZENE							6.6 R	5.8 UJ					
1,4-DICHLOROBENZENE							6.6 R	5.8 UJ					
2-BUTANONE							19 J	23 U					
2-HEXANONE							26 R	23 U					
4-METHYL-2-PENTANONE							26 R	23 U					
ACETONE							81 J	91 J					
BENZENE							6.6 R	5.8 U					
BROMODICHLOROMETHANE							6.6 R	5.8 U					
BROMOFORM							6.6 R	5.8 U					
BROMOMETHANE							13 R	12 U					
CARBON DISULFIDE							6.6 R	5.8 U					
CARBON TETRACHLORIDE							6.6 R	5.8 U					
CHLOROBENZENE							6.6 R	5.8 U					
CHLORODIBROMOMETHANE							6.6 R	5.8 U					
CHLOROETHANE							13 R	12 U					
CHLOROFORM							6.6 R	5.8 U					
CHLOROMETHANE							13 R	12 UJ					
CIS-1,2-DICHLOROETHENE													
CIS-1,3-DICHLOROPROPENE							6.6 R	5.8 U					
ETHYLBENZENE							6.6 R	5.8 U					
M+P-XYLENES													
METHYLENE CHLORIDE							6.6 R	5.8 U					
STYRENE							6.6 R	5.8 U					
TETRACHLOROETHENE							6.6 R	5.8 U					
TOLUENE							6.6 R	5.8 U					
TOTAL 1,2-DICHLOROETHENE							6.6 R	5.8 U					
TOTAL XYLENES							6.6 R	5.8 U					
TRANS-1,2-DICHLOROETHENE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
TRANS-1,3-DICHLOROPROPENE							6.6 R	5.8 U					
TRICHLOROETHENE							6.6 R	5.8 U					
VINYL CHLORIDE							13 R	12 U					
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS													
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS													
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS													
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER													
O-XYLENE													
TOTAL XYLENES													
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE							2800 U	350 U					
2,2'-OXYBIS(1-CHLOROPROPANE)							2800 U	350 U					
2,4,5-TRICHLOROPHENOL							4000 U	1800 U					
2,4,6-TRICHLOROPHENOL							2800 U	350 U					
2,4-DICHLOROPHENOL							2800 U	350 U					
2,4-DIMETHYLPHENOL							2800 U	350 U					
2,4-DINITROPHENOL							4000 U	1800 U					
2,4-DINITROTOLUENE							2800 U	350 U					
2,6-DINITROTOLUENE							2800 U	350 U					
2-CHLORONAPHTHALENE							2800 U	350 U					
2-CHLOROPHENOL							2800 U	350 U					
2-METHYLNAPHTHALENE	24 U	24 U	23 U	21 U	7.4 J		1600 UJ	580	18 J	29.5 J	41 J	92 UJ	95 UJ
2-METHYLPHENOL							2800 U	350 U					
2-NITROANILINE							4000 U	1800 U					
2-NITROPHENOL							2800 U	350 U					
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE							2800 U	350 UJ					
3-NITROANILINE							4000 U	1800 U					
4,6-DINITRO-2-METHYLPHENOL							2000 U	250 U					
4-BROMOPHENYL PHENYL ETHER							2800 U	350 U					
4-CHLORO-3-METHYLPHENOL							2800 U	350 U					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
4-CHLOROANILINE							2800 U	350 U					
4-CHLOROPHENYL PHENYL ETHER							2800 U	350 U					
4-METHYLPHENOL							2800 U	350 U					
4-NITROANILINE							4000 U	1800 U					
4-NITROPHENOL							4000 U	1800 U					
ACENAPHTHENE	16 J	20 J	23 U	21 U	63		920	2800 J	330 J	275 J	220 J	92 UJ	95 UJ
ACENAPHTHYLENE	24 U	24 U	23 U	21 U	24 U		1600 UJ	340 J	13 J	28.8 J	89 UJ	92 UJ	95 UJ
ANTHRACENE	24.7 J	41	23 U	21 U	130		2500 J	5400 J	660 J	585 J	510 J	92 UJ	95 UJ
BAP EQUIVALENT-HALFND	92.4 J	144 J	23 U	21 U	413		6710 J	15600 J	1880 J	1920 J	1960 J	154 J	95 UJ
BAP EQUIVALENT-POS	86.4 J	144 J	23 U	21 U	413		6710 J	15600 J	1880 J	1920 J	1960 J	4 J	95 UJ
BENZO(A)ANTHRACENE	67	110	23 U	21 U	300		6000 J	12000 J	1700 J	1600 J	1500 J	40 J	95 UJ
BENZO(A)PYRENE	57 J	93	23 U	21 U	270		4800 J	11000 J	1300 J	1350 J	1400 J	92 UJ	95 UJ
BENZO(B)FLUORANTHENE	88	140	23 U	21 U	370		6100 J	17000 J	2000 J	1950 J	1900 J	92 UJ	95 UJ
BENZO(G,H,I)PERYLENE	43 J	71	23 U	21 U	210		2900 J	8200 J	480 J	535 J	590 J	92 UJ	95 UJ
BENZO(K)FLUORANTHENE	29 J	46	23 U	21 U	130		4600 J	9400 J	800 J	845 J	890 J	92 UJ	95 UJ
BIS(2-CHLOROETHOXY)METHANE							2800 U	350 U					
BIS(2-CHLOROETHYL)ETHER							2800 U	350 U					
BIS(2-ETHYLHEXYL)PHTHALATE							610	1400 J					
BUTYL BENZYL PHTHALATE							2800 U	150 J					
CARBAZOLE							960	2200					
CHRYSENE	69	110	23 U	21 U	320		6800 J	14000 J	1800 J	1700 J	1600 J	92 UJ	95 UJ
DIBENZO(A,H)ANTHRACENE	14.5 J	17 J	23 U	21 U	52		290 J	720 J	150 J	150 J	150 J	180 UJ	190 UJ
DIBENZOFURAN							2800 U	1300					
DIETHYL PHTHALATE							2800 U	350 U					
DIMETHYL PHTHALATE							2800 U	350 U					
DI-N-BUTYL PHTHALATE							2800 U	350 U					
DI-N-OCTYL PHTHALATE							2800 UJ	350 UJ					
FLUORANTHENE	185	300	23 U	21 U	730		14000 J	28000 J	2600 J	3050 J	3500 J	39 J	95 UJ
FLUORENE	16.5 J	21 J	23 U	21 U	57		850	2500 J	250 J	235 J	220 J	92 UJ	95 UJ
HEXACHLOROBENZENE							2800 U	350 U					
HEXACHLOROBUTADIENE							2800 U	350 U					
HEXACHLOROCYCLOPENTADIENE							2800 U	350 U					
HEXACHLOROETHANE							2800 U	350 U					
INDENO(1,2,3-CD)PYRENE	50.5 J	85	23 U	21 U	220		3600 J	8300 J	480 J	530 J	580 J	180 UJ	190 UJ
ISOPHORONE							2800 U	350 U					
NAPHTHALENE	24 U	24 U	23 U	21 U	7.1 J		1600 UJ	670	19 J	45 J	71 J	92 UJ	95 UJ
NITROBENZENE							2800 U	350 U					
N-NITROSO-DI-N-PROPYLAMINE							820 U	100 U					
N-NITROSODIPHENYLAMINE							2800 U	350 U					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
PENTACHLOROPHENOL							4000 U	1800 U					
PHENANTHRENE	134	220	23 U	21 U	560		9900 J	18000 J	1800 J	2000 J	2200 J	92 UJ	95 UJ
PHENOL							2800 U	350 U					
PYRENE	138	220	23 U	21 U	560		13000 J	33000 J	2900 J	2950 J	3000 J	92 UJ	95 UJ
TOTAL PAHS	912 J	1490 J	23 U	21 U	3990 J		76300 J	172000 J	17300 J	17800 J	18400 J	79 J	106 UJ
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD							33 J	53 J					
4,4'-DDE							29	110 J					
4,4'-DDT							66 J	130 J					
ALDRIN							1.7 U	5.1 J					
ALPHA-BHC							1.7 U	1.7 U					
ALPHA-CHLORDANE							1.7 U	18 J					
AROCLOR-1016							34 U	35 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1221							34 U	35 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1232							69 U	70 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1242							34 U	35 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1248							34 U	35 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1254							34 U	35 U	7.2 U	7.2 U	7.2 U	7.3 U	7.6 U
AROCLOR-1260							34 U	35 U	59	61	63	86	150
BETA-BHC							1.7 U	1.7 U					
DELTA-BHC							1.7 U	1.7 U					
DIELDRIN							3.4 U	3.5 U					
ENDOSULFAN I							1.7 U	1.7 U					
ENDOSULFAN II							7.8 J	26 J					
ENDOSULFAN SULFATE							11 J	53 J					
ENDRIN							3.4 U	3.5 U					
ENDRIN ALDEHYDE							23 J	41 J					
ENDRIN KETONE							16 J	74 J					
GAMMA-BHC (LINDANE)							1.7 U	1.7 U					
GAMMA-CHLORDANE							1.7 U	2.5 J					
HEPTACHLOR							1.7 U	1.7 U					
HEPTACHLOR EPOXIDE							63 J	200 J					
METHOXYCHLOR							38 J	17 U					
TOTAL AROCLOR							39 U	40 U	59	61	63	86	150
TOXAPHENE							170 U	170 U					
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM							4740 J	5230 J	7800	6900	6000	13000	7000
ANTIMONY							0.19 UJ	0.21 UJ	0.24 U	0.22 U	0.2 U	0.1 U	0.092 U
ARSENIC							2.6	4.1	6.4	5.7	5	1.5	2.2
BARIUM							13.5	18	18	16.5	15	17	17
BERYLLIUM							0.4 J	0.43 J	0.46	0.42	0.38	0.42	0.41
CADMIUM							0.33 J	0.24 U	0.24 U	0.22 U	0.2 U	0.15 U	0.27 U
CALCIUM							761	640	480 J	400 J	320 J	1100 J	1100 J
CHROMIUM							11.9	18.7	14	12	10	17	10
COBALT							3.4	4	3	2.55	2.1	3.9	4.1
COPPER							61.9	62.8	4.2	3.75	3.3	5.7	9.2
IRON							11100	13200	21000	19000	17000	16000	18000
LEAD							90.7	114	20 J	16 J	12 J	9.3 J	10 J
MAGNESIUM							1600	2160	1800 J	1450 J	1100 J	3600 J	2600 J
MANGANESE							209	294	100 J	92 J	84 J	200 J	440 J
MERCURY							0.07 U	0.2 UJ	0.0073 J	0.0073 J	0.0073 J	0.019 J	0.0014 J
NICKEL							8.9	11.3	7.7	6.35	5	11	9
POTASSIUM							281	292	480	435	390	230	440
SELENIUM							0.31 U	0.37 J	0.79 J	0.635 J	0.48 J	0.85 J	0.48 J
SILVER							0.26 UJ	0.28 U	0.092 U	0.0795 U	0.067 U	0.095 U	0.06 U
SODIUM							40.6 U	38.8 U	38 J	33 J	28 J	46 J	59 J
THALLIUM							0.31 U	0.34 U	0.088 U	0.088 U	0.088 U	0.089 U	0.079 U
VANADIUM							33.1	38	39	34.5	30	21	17
ZINC							53.2	70	29	25	21	34	36
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	16.6	16.4	11.4	7.7	15.4				8	7.5	7	10	12
PERCENT SOLIDS													
TOTAL SOLIDS							94	94					
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE							0.22 U	0.22 U					
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29	EU29	EU30	EU31
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1	1	2	2	2	2	2
C11-C22 AROMATICS							110000 J	260000 J					
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS							71000 J	73000					
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS							8400 J	12000 J					
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS							190000 J	340000 J					
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD						704							
1,2,3,4,6,7,8,9-OCDF						6.03							
1,2,3,4,6,7,8-HPCDD						16.7							
1,2,3,4,6,7,8-HPCDF						4.77							
1,2,3,4,7,8,9-HPCDF						1.08 U							
1,2,3,4,7,8-HXCDD						0.254 J							
1,2,3,4,7,8-HXCDF						1.3 J							
1,2,3,6,7,8-HXCDD						0.539 U							
1,2,3,6,7,8-HXCDF						1.75 J							
1,2,3,7,8,9-HXCDD						0.539 U							
1,2,3,7,8,9-HXCDF						0.502 J							
1,2,3,7,8-PECDD						0.269 U							
1,2,3,7,8-PECDF						0.539 U							
2,3,4,6,7,8-HXCDF						4.23							
2,3,4,7,8-PECDF						7.6							
2,3,7,8-TCDD						0.219 U							
2,3,7,8-TCDF						0.568 UJ							
TEQ						3.51 J							
TEQ HALFND						3.85 J							
TOTAL HPCDD						40.1							
TOTAL HPCDF						10.5 J							
TOTAL HXCDD						3.3 J							
TOTAL HXCDF						43.4 J							
TOTAL PECDD						1.75 J							
TOTAL PECDF						57.3 J							
TOTAL TCDD						0.219 U							
TOTAL TCDF						13.2 J							

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,1,2,2-TETRACHLOROETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,1,2-TRICHLOROETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,1-DICHLOROETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,1-DICHLOROETHENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,2-DIBROMO-3-CHLOROPROPANE													
1,2-DIBROMOETHANE													
1,2-DICHLOROBENZENE									5.1 R	5.5 UJ	5.55 UJ	5.6 UJ	5.1 UJ
1,2-DICHLOROETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,2-DICHLOROPROPANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
1,3-DICHLOROBENZENE									5.1 R	5.5 UJ	5.55 UJ	5.6 UJ	5.1 UJ
1,4-DICHLOROBENZENE									5.1 R	5.5 UJ	5.55 UJ	5.6 UJ	5.1 UJ
2-BUTANONE									21 R	22 U	22 U	22 U	21 U
2-HEXANONE									21 R	22 U	22 U	22 U	21 U
4-METHYL-2-PENTANONE									21 R	22 U	22 U	22 U	21 U
ACETONE									21 R	13 J	14 J	15 J	16 J
BENZENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
BROMODICHLOROMETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
BROMOFORM									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
BROMOMETHANE									10 R	11 U	11 U	11 U	10 U
CARBON DISULFIDE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
CARBON TETRACHLORIDE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
CHLOROBENZENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
CHLORODIBROMOMETHANE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
CHLOROETHANE									10 R	11 U	11 U	11 U	10 U
CHLOROFORM									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
CHLOROMETHANE									10 R	11 UJ	11 UJ	11 UJ	10 UJ
CIS-1,2-DICHLOROETHENE													
CIS-1,3-DICHLOROPROPENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
ETHYLBENZENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
M+P-XYLENES													
METHYLENE CHLORIDE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
STYRENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
TETRACHLOROETHENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
TOLUENE									5.1 R	5.5 U	2.12 J	1.5 J	3.7 J
TOTAL 1,2-DICHLOROETHENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
TOTAL XYLENES									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
TRANS-1,2-DICHLOROETHENE													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
TRANS-1,3-DICHLOROPROPENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
TRICHLOROETHENE									5.1 R	5.5 U	5.55 U	5.6 U	5.1 U
VINYL CHLORIDE									10 R	11 U	11 U	11 U	10 U
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS													
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS													
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS													
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER													
O-XYLENE													
TOTAL XYLENES													
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE									350 U	350 U	355 U	360 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)									350 U	350 U	355 U	360 U	360 U
2,4,5-TRICHLOROPHENOL									1700 U	1800 U	1800 U	1800 U	1800 U
2,4,6-TRICHLOROPHENOL									350 U	350 U	355 U	360 U	360 U
2,4-DICHLOROPHENOL									350 U	350 U	355 U	360 U	360 U
2,4-DIMETHYLPHENOL									350 U	350 U	355 U	360 U	360 U
2,4-DINITROPHENOL									1700 UJ	1800 U	1800 U	1800 U	1800 U
2,4-DINITROTOLUENE									350 U	350 U	355 U	360 U	360 U
2,6-DINITROTOLUENE									350 U	350 U	355 U	360 U	360 U
2-CHLORONAPHTHALENE									350 U	350 U	355 U	360 U	360 U
2-CHLOROPHENOL									350 U	350 U	355 U	360 U	360 U
2-METHYLNAPHTHALENE	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	13 J		350 U	310 J	295 J	280 J	180 J
2-METHYLPHENOL									350 U	350 U	355 U	360 U	360 U
2-NITROANILINE									1700 U	1800 U	1800 U	1800 U	1800 U
2-NITROPHENOL									350 U	350 U	355 U	360 U	360 U
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE									350 UJ	350 U	355 U	360 U	360 UJ
3-NITROANILINE									1700 U	1800 U	1800 U	1800 U	1800 U
4,6-DINITRO-2-METHYLPHENOL									250 UJ	260 U	260 U	260 U	260 UJ
4-BROMOPHENYL PHENYL ETHER									350 U	350 U	355 U	360 U	360 UJ
4-CHLORO-3-METHYLPHENOL									350 U	350 U	355 U	360 U	360 U

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
4-CHLOROANILINE									350 U	350 U	355 U	360 U	360 U
4-CHLOROPHENYL PHENYL ETHER									350 U	350 U	355 U	360 U	360 U
4-METHYLPHENOL									350 U	350 U	355 U	360 U	360 U
4-NITROANILINE									1700 U	1800 U	1800 U	1800 U	1800 U
4-NITROPHENOL									1700 U	1800 U	1800 U	1800 U	1800 U
ACENAPHTHENE	19 UJ	19 UJ	19 UJ	18 UJ	8 J	18 UJ	120 J		350 U	350 U	355 U	360 U	360 U
ACENAPHTHYLENE	19 UJ	19 UJ	19 UJ	13 J	20 UJ	18 UJ	10 J		350 U	350 U	355 U	360 U	360 U
ANTHRACENE	19 UJ	19 UJ	19 UJ	11 J	19 J	18 UJ	210 J		350 U	350 U	134 J	93 J	88 J
BAP EQUIVALENT-HALFND	47.4 J	43.8 J	40.2 J	75.1 J	85.9 J	30.5 J	648 J		1800 U	311 J	602 J	893 J	224 J
BAP EQUIVALENT-POS	27 J	23.2 J	19.3 J	57.1 J	63.9 J	0.7 J	648 J		1800 U	311 J	602 J	893 J	224 J
BENZO(A)ANTHRACENE	20 J	18 J	16 J	37 J	51 J	18 UJ	630 J		350 UJ	270 J	350 J	430	280 J
BENZO(A)PYRENE	20 J	17.5 J	15 J	42 J	51 J	18 UJ	440 J		1800 U	160 J	385 J	610 J	100 J
BENZO(B)FLUORANTHENE	48 J	37 J	26 J	77 J	74 J	7 J	750 J		350 UJ	630	815	1000	500
BENZO(G,H,I)PERYLENE	19 UJ	19 UJ	19 UJ	36 J	31 J	18 UJ	150 J		350 UJ	270 J	335 J	400	260 J
BENZO(K)FLUORANTHENE	20 J	16 J	12 J	53 J	36 J	18 UJ	250 J		350 UJ	150 J	190 J	230 J	150 J
BIS(2-CHLOROETHOXY)METHANE									350 U	350 U	355 U	360 U	360 U
BIS(2-CHLOROETHYL)ETHER									350 U	350 U	355 U	360 U	360 U
BIS(2-ETHYLHEXYL)PHTHALATE									350 UJ	170 J	145 J	120 J	360 UJ
BUTYL BENZYL PHTHALATE									350 UJ	140 J	160 J	360 U	360 UJ
CARBAZOLE									350 U	350 U	355 U	360 U	360 UJ
CHRYSENE	33 J	25.5 J	18 J	53 J	67 J	18 UJ	700 J		350 UJ	630	695	760	470 J
DIBENZO(A,H)ANTHRACENE	37 UJ	37.5 UJ	38 UJ	36 UJ	40 UJ	36 UJ	52 J		2.1 U	31 J	59.5 J	88 J	13 J
DIBENZOFURAN									350 U	200 J	180 J	160 J	120 J
DIETHYL PHTHALATE									350 U	350 U	355 U	360 U	360 U
DIMETHYL PHTHALATE									350 U	350 U	355 U	360 U	360 U
DI-N-BUTYL PHTHALATE									350 U	350 U	355 U	360 U	360 UJ
DI-N-OCTYL PHTHALATE									350 UJ	350 U	355 U	360 U	360 U
FLUORANTHENE	49 J	37.5 J	26 J	68 J	150 J	7 J	1300 J		350 U	450	580	710	600 J
FLUORENE	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	97 J		350 U	350 U	355 U	360 U	360 U
HEXACHLOROBENZENE									350 U	350 U	355 U	360 U	360 UJ
HEXACHLOROBUTADIENE									350 U	350 U	355 U	360 U	360 U
HEXACHLOROCYCLOPENTADIENE									350 U	350 U	355 U	360 U	360 U
HEXACHLOROETHANE									350 U	350 U	355 U	360 U	360 U
INDENO(1,2,3-CD)PYRENE	37 UJ	37.5 UJ	38 UJ	31 J	40 UJ	36 UJ	150 J		350 UJ	280 J	385 J	490	310 J
ISOPHORONE									350 U	350 U	355 U	360 U	360 U
NAPHTHALENE	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	21 J		350 U	280 J	300 J	320 J	250 J
NITROBENZENE									350 U	350 U	355 U	360 U	360 U
N-NITROSO-DI-N-PROPYLAMINE									100 U	110 U	110 U	110 U	110 U
N-NITROSODIPHENYLAMINE									350 U	350 U	355 U	360 U	360 UJ

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
PENTACHLOROPHENOL									1700 U	1800 U	1800 U	1800 U	1800 UJ
PHENANTHRENE	11 J	10.2 J	19 UJ	30 J	95 J	18 UJ	1000 J		350 U	500	570	640	510 J
PHENOL									350 U	170 J	175 J	360 U	360 U
PYRENE	55 J	41.5 J	28 J	61 J	110 J	18 UJ	1300 J		350 UJ	470	635	800	450 J
TOTAL PAHS	256 J	198 J	141 J	512 J	692 J	14 J	7190 J		415 UJ	4430 J	5640 J	6850 J	4160 J
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD									3.5 U	3.5 U	3.22 J	4.7 J	3.6 U
4,4'-DDE									3.5 U	5 J	7.45 J	9.9 J	3.7 J
4,4'-DDT									3.5 U	23 J	24.5 J	26 J	17 J
ALDRIN									1.7 U	2.7 J	1.8 J	1.8 U	2.6 J
ALPHA-BHC									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
ALPHA-CHLORDANE									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
AROCLOR-1016	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
AROCLOR-1221	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
AROCLOR-1232	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		70 U	70 U	71 U	72 U	72 U
AROCLOR-1242	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
AROCLOR-1248	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
AROCLOR-1254	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
AROCLOR-1260	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
BETA-BHC									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
DELTA-BHC									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
DIELDRIN									3.5 U	3.5 U	3.55 U	3.6 U	3.6 U
ENDOSULFAN I									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
ENDOSULFAN II									3.5 U	3.5 U	3.55 U	3.6 U	3.6 U
ENDOSULFAN SULFATE									3.5 U	3.5 U	3.55 U	3.6 U	3.6 U
ENDRIN									3.5 U	3.5 U	3.55 U	3.6 U	3.6 U
ENDRIN ALDEHYDE									3.5 U	3.5 U	2.78	3.8	3.6 U
ENDRIN KETONE									3.5 U	4.9 J	5.6 J	6.3 J	4.2
GAMMA-BHC (LINDANE)									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
GAMMA-CHLORDANE									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
HEPTACHLOR									1.7 U	1.7 U	1.75 U	1.8 U	1.8 U
HEPTACHLOR EPOXIDE									1.7 U	9.6 J	8.7 J	7.8 J	12 J
METHOXYCHLOR									17 U	17 U	13.8 J	19 J	18 U
TOTAL AROCLOR	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		40 U	40 U	40.6 U	41.1 U	41.1 U
TOXAPHENE									170 U	170 U	175 U	180 U	180 U
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM	4800	4650	4500	7100	7600	6500	9400		7380 J	6960 J	6620 J	6280 J	4470 J
ANTIMONY	0.088 U	0.08 U	0.072 U	0.1 U	0.097 U	0.085 U	0.16 U		0.2 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.23 UJ
ARSENIC	1.1	1.15	1.2	1.7	1.6	1.2	2.3		4.4 J	3.1	3.85	4.6	0.81 J
BARIUM	11	12.5	14	16	22	12	22		20.2 J	24.3	22.8	21.2	15.9
BERYLLIUM	0.36 J	0.34 J	0.32 J	0.4	0.53	0.31 J	0.45		0.67	0.38 J	0.39 J	0.4 J	0.28 J
CADMIUM	0.13 U	0.108 J	0.15 J	0.18	0.21	0.16 J	0.33		0.23 UJ	4	2.75	1.5	0.27 U
CALCIUM	760	735	710	1300	1600	1200	1200		899	1620	1330	1040	2740
CHROMIUM	6.2	5.7	5.2	7	8.2	9	15		10.6	11.8	11.1	10.4	7.6
COBALT	3.7	3.65	3.6	4.3	5.6	3.6	4.9		3.6	3.8	3.55	3.3	4
COPPER	7.8	7.6	7.4	7.8 J	6.1 J	7.9 J	13 J		12.2 J	13.6	14.2	14.8	5.6
IRON	8800	8450	8100	15000	22000	12000	18000		14700	12100	11600	11100	6660
LEAD	7.1	6.8	6.5	10	9.9	8.2	32		8.5 J	62.9	60.2	57.5	11.7
MAGNESIUM	1700	1650	1600	2500	2100	2300	3000		2430 J	1880	1800	1730	1380 J
MANGANESE	210 J	220 J	230 J	240 J	380 J	200 J	350 J		150 J	127	135	143	92.5 J
MERCURY	0.011 U	0.0038 J	0.002 J	0.004 J	0.003 J	0.002 J	0.022 J		0.05 UJ	0.11 UJ	0.1 UJ	0.09 UJ	0.07 UJ
NICKEL	6.7	6.1	5.5	7.1	7.7	7.7	9.9		9	10.4	9.25	8.1	6.6
POTASSIUM	280 J	265 J	250 J	480 J	310 J	320 J	440 J		384	401	372	344	314
SELENIUM	0.7 U	0.67 U	0.64 U	0.35 J	0.24 J	0.63 U	0.65 U		0.61 J	0.68 J	0.415 J	0.3 U	0.37 U
SILVER	0.096 U	0.082 U	0.068 U	0.078 U	0.1 U	0.085 U	0.1 U		0.26 UJ	0.26 UJ	0.255 UJ	0.25 UJ	0.31 U
SODIUM	37 J	35.5 J	34 J	54 J	47 J	49 J	58 J		73.9	92.2	77.8	63.3	53.1 U
THALLIUM	0.093 U	0.0895 U	0.086 U	0.066 U	0.076 U	0.084 U	0.087 U		0.32 U	0.32 U	0.315 U	0.31 U	0.37 U
VANADIUM	12	11.5	11	19	16	11	19		14.9 J	34.2	29.9	25.6	13.9 J
ZINC	30	29.5	29	38	33	33	44		35.5 J	42.6	37.6	32.6	33.9
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	11	12	13	7	16	6	14						
PERCENT SOLIDS													
TOTAL SOLIDS									81	94	93.5	93	83
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE									0.21 U	0.22 U	0.22 U	0.22 U	0.22
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	1	1	1	1	1
C11-C22 AROMATICS									20000 U	25000 J	23500 J	22000 J	23000 J
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS									15000	33000	33000	33000	42000
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS									8100 J	28000 J	32500 J	37000 J	9700 J
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS									34000 U	86000 J	89000 J	92000 J	74000 J
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD							583	359					
1,2,3,4,6,7,8,9-OCDF							5.07	5.87					
1,2,3,4,6,7,8-HPCDD							21.2	12					
1,2,3,4,6,7,8-HPCDF							4.1	4.91					
1,2,3,4,7,8,9-HPCDF							0.972 U	1.05 U					
1,2,3,4,7,8-HXCDD							0.486 U	0.135 J					
1,2,3,4,7,8-HXCDF							0.892 J	0.994 J					
1,2,3,6,7,8-HXCDD							0.765 J	0.302 J					
1,2,3,6,7,8-HXCDF							0.912 J	0.568 J					
1,2,3,7,8,9-HXCDD							0.454 J	0.317 J					
1,2,3,7,8,9-HXCDF							0.972 U	1.05 U					
1,2,3,7,8-PECDD							0.239 J	0.264 U					
1,2,3,7,8-PECDF							0.281 J	0.294 J					
2,3,4,6,7,8-HXCDF							2.15 J	0.868 J					
2,3,4,7,8-PECDF							3.18	1.32 J					
2,3,7,8-TCDD							0.422 J	0.439 J					
2,3,7,8-TCDF							0.444 U	0.419 U					
TEQ							2.57 J	1.44 J					
TEQ HALFND							2.67 J	1.65 J					
TOTAL HPCDD							50.8	28.4					
TOTAL HPCDF							8.25	6.72 J					
TOTAL HXCDD							5.21 J	2.64 J					
TOTAL HXCDF							21 J	9.48 J					
TOTAL PECDD							2.01 J	0.45 J					
TOTAL PECDF							27 J	12.2 J					
TOTAL TCDD							1.21 J	0.439 J					
TOTAL TCDF							7.16 J	5.5 J					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
VOLATILES (UG/KG)													
1,1,1-TRICHLOROETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,1,2,2-TETRACHLOROETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,1,2-TRICHLOROETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,1-DICHLOROETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,1-DICHLOROETHENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,2-DIBROMO-3-CHLOROPROPANE	5.2 UJ												
1,2-DIBROMOETHANE	5.2 UJ												
1,2-DICHLOROBENZENE	300 U		5.4 UJ	5.5 UJ	250 UJ		6 UJ	6.1 UJ					
1,2-DICHLOROETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,2-DICHLOROPROPANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
1,3-DICHLOROBENZENE	300 U		5.4 UJ	5.5 UJ	250 UJ		6 UJ	6.1 UJ					
1,4-DICHLOROBENZENE	300 U		5.4 UJ	5.5 UJ	250 UJ		6 UJ	6.1 UJ					
2-BUTANONE	26 UJ		22 U	2.2 J	140 J		24 U	24 U					
2-HEXANONE	26 R		22 U	22 U	990 U		24 U	24 U					
4-METHYL-2-PENTANONE	26 R		22 U	22 U	990 U		24 U	24 U					
ACETONE	43 J		20 J	19 J	92 J		140 J	21 J					
BENZENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
BROMODICHLOROMETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
BROMOFORM	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
BROMOMETHANE	5.2 UJ		11 U	11 U	490 UJ		12 U	12 U					
CARBON DISULFIDE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
CARBON TETRACHLORIDE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
CHLOROBENZENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
CHLORODIBROMOMETHANE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
CHLOROETHANE	5.2 UJ		11 U	11 U	490 UJ		12 U	12 U					
CHLOROFORM	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
CHLOROMETHANE	5.2 UJ		11 UJ	11 UJ	490 UJ		12 UJ	12 UJ					
CIS-1,2-DICHLOROETHENE	5.2 UJ												
CIS-1,3-DICHLOROPROPENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
ETHYLBENZENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
M+P-XYLENES	5.2 UJ												
METHYLENE CHLORIDE	26 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
STYRENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
TETRACHLOROETHENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
TOLUENE	5.2 UJ		5.4 U	5.5 U	250 U		1.6 J	6.1 U					
TOTAL 1,2-DICHLOROETHENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
TOTAL XYLENES	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
TRANS-1,2-DICHLOROETHENE	5.2 UJ												

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
TRANS-1,3-DICHLOROPROPENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
TRICHLOROETHENE	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U					
VINYL CHLORIDE	5.2 UJ		11 U	11 U	490 UJ		12 U	12 U					
VPH MADEP (UG/KG)													
C5-C8 ALIPHATICS													
C5-C8 ALIPHATICS (WEIGHTED 0.5)													
C5-C8 ALIPHATICS-UNADJ													
C9-C10 AROMATICS													
C9-C10 AROMATICS (WEIGHTED 1.0)													
C9-C12 ALIPHATICS													
C9-C12 ALIPHATICS (WEIGHTED 0.05)													
C9-C12 ALIPHATICS-UNADJ													
METHYL TERT-BUTYL ETHER													
O-XYLENE	5.2 UJ												
TOTAL XYLENES	5.2 UJ												
VOLATILE PETROLEUM HYDROCARBONS													
SEMIVOLATILES (UG/KG)													
1,2,4-TRICHLOROBENZENE	300 U		350 U	350 U	370 U		360 U	360 U					
2,2'-OXYBIS(1-CHLOROPROPANE)	300 U		350 U	350 U	370 U		360 U	360 U					
2,4,5-TRICHLOROPHENOL	300 U		1700 U	1700 U	1800 U		1800 U	1800 U					
2,4,6-TRICHLOROPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
2,4-DICHLOROPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
2,4-DIMETHYLPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
2,4-DINITROPHENOL	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
2,4-DINITROTOLUENE	300 U		350 U	350 U	370 U		360 U	360 U					
2,6-DINITROTOLUENE	300 U		350 U	350 U	370 U		360 U	360 U					
2-CHLORONAPHTHALENE	300 U		350 U	350 U	370 U		360 U	360 U					
2-CHLOROPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
2-METHYLNAPHTHALENE	300 U		550	720	370 U		360 U	760				210 J	18 UJ
2-METHYLPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
2-NITROANILINE	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
2-NITROPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
3&4-METHYLPHENOL													
3,3'-DICHLOROBENZIDINE	300 U		350 U	350 UJ	370 UJ		360 UJ	360 UJ					
3-NITROANILINE	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
4,6-DINITRO-2-METHYLPHENOL	610 U		250 U	250 U	260 U		260 U	260 U					
4-BROMOPHENYL PHENYL ETHER	300 U		350 U	350 U	370 U		360 U	360 U					
4-CHLORO-3-METHYLPHENOL	610 U		350 U	350 U	370 U		360 U	360 U					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
4-CHLOROANILINE	300 U		350 U	350 U	370 U		360 U	360 U					
4-CHLOROPHENYL PHENYL ETHER	300 U		350 U	350 U	370 U		360 U	360 U					
4-METHYLPHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
4-NITROANILINE	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
4-NITROPHENOL	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
ACENAPHTHENE	300 U		120 J	590	370 U		360 U	360 J				1400 J	10 J
ACENAPHTHYLENE	300 U		130 J	110 J	370 U		360 U	180 J				59 J	18 UJ
ANTHRACENE	300 U		290 J	3000	370 U		96 J	660				2200 J	24 J
BAP EQUIVALENT-HALFND	300 U		3530 J	1220 J	2.2 UJ		328 J	1560 J				7970 J	85.4 J
BAP EQUIVALENT-POS	300 U		3530 J	1220 J	2.2 UJ		328 J	1560 J				7970 J	65.1 J
BENZO(A)ANTHRACENE	300 U		2900 J	3500 J	370 UJ		350 J	2700 J				6300 J	67 J
BENZO(A)PYRENE	300 U		2600 J	540 J	2.2 UJ		190 J	750 J				5600 J	50 J
BENZO(B)FLUORANTHENE	300 U		2900 J	2000 J	370 UJ		560 J	2800 J				7400 J	80 J
BENZO(G,H,I)PERYLENE	300 U		2200 J	570 J	370 UJ		270 J	1400 J				2500 J	20 J
BENZO(K)FLUORANTHENE	300 U		2500 J	1700 J	370 UJ		130 J	2800 J				3200 J	32 J
BIS(2-CHLOROETHOXY)METHANE	300 U		350 U	350 U	370 U		360 U	360 U					
BIS(2-CHLOROETHYL)ETHER	300 U		350 U	350 U	370 U		360 U	360 U					
BIS(2-ETHYLHEXYL)PHTHALATE	300 U		140 J	170 J	370 UJ		140 J	320 J					
BUTYL BENZYL PHTHALATE	300 U		350 U	350 UJ	370 UJ		360 UJ	93 J					
CARBAZOLE	300 U		260 J	210 J	370 U		360 U	540					
CHRYSENE	300 U		3800 J	4400 J	370 UJ		370 J	3300 J				6500 J	73 J
DIBENZO(A,H)ANTHRACENE	300 U		100 J	52 J	2.2 U		19 J	87 J				700 J	37 UJ
DIBENZOFURAN	300 U		360	720	370 U		360 U	810					
DIETHYL PHTHALATE	300 U		350 U	350 U	370 U		360 U	360 U					
DIMETHYL PHTHALATE	300 U		350 U	350 U	370 U		360 U	360 U					
DI-N-BUTYL PHTHALATE	300 U		350 U	350 U	370 U		360 U	360 U					
DI-N-OCTYL PHTHALATE	300 U		350 U	350 UJ	370 UJ		360 UJ	360 UJ					
FLUORANTHENE	300 U		7000 J	12000	370 U		620	6200				10000 J	160 J
FLUORENE	300 U		150 J	590	370 U		360 U	360				1200 J	18 UJ
HEXACHLOROBENZENE	300 U		350 U	350 U	370 U		360 U	360 U					
HEXACHLOROBUTADIENE	300 U		350 U	350 U	370 U		360 U	360 U					
HEXACHLOROCYCLOPENTADIENE	300 U		350 U	350 U	370 U		360 U	360 U					
HEXACHLOROETHANE	300 U		350 U	350 U	370 U		360 U	360 U					
INDENO(1,2,3-CD)PYRENE	300 U		2200 J	560 J	370 UJ		260 J	1400 J				2600 J	37 UJ
ISOPHORONE	300 U		350 U	350 U	370 U		360 U	360 U					
NAPHTHALENE	300 U		540	550	370 U		360 U	900				700 J	18 UJ
NITROBENZENE	300 U		350 U	350 U	370 U		360 U	360 U					
N-NITROSO-DI-N-PROPYLAMINE	300 U		100 U	100 U	110 U		110 U	110 U					
N-NITROSODIPHENYLAMINE	300 U		350 U	350 U	370 U		360 U	360 U					

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
PENTACHLOROPHENOL	610 U		1700 U	1700 U	1800 U		1800 U	1800 U					
PHENANTHRENE	300 U		5900 J	6000	370 U		550	3900				8500 J	91 J
PHENOL	300 U		350 U	350 U	370 U		360 U	360 U					
PYRENE	300 U		6200 J	11000 J	370 UJ		1100 J	8000 J				11000 J	140 J
TOTAL PAHS	300 U		40100 J	47900 J	327 UJ		4520 J	36600 J				70100 J	747 J
PESTICIDES/PCBS (UG/KG)													
4,4'-DDD	2 U		6.7 J	6 J	3.7 U		8.5 J	12 J					
4,4'-DDE	2 U		13	9.7	3.7 U		3.8	24					
4,4'-DDT	2 U		43 J	24 J	3.7 U		11 J	35 J					
ALDRIN	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
ALPHA-BHC	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
ALPHA-CHLORDANE	2.6 R		3.5 J	1.7 U	1.8 U		1.8 U	1.8 U					
AROCLOR-1016	31 U		35 U	35 U	37 U		36 U	36 U				8.5 U	7.4 U
AROCLOR-1221	31 U		35 U	35 U	73 U		36 U	36 U				8.5 U	7.4 U
AROCLOR-1232	31 U		69 U	69 U	37 U		72 U	72 U				8.5 U	7.4 U
AROCLOR-1242	31 U		35 U	35 U	37 U		36 U	36 U				8.5 U	7.4 U
AROCLOR-1248	31 U		35 U	35 U	37 U		36 U	36 U				8.5 U	7.4 U
AROCLOR-1254	31 U		35 U	35 U	37 U		36 U	36 U				8.5 U	7.4 U
AROCLOR-1260	31 U		35 U	35 U	37 U		36 U	36 U				46	7.4 U
BETA-BHC	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
DELTA-BHC	0.99 UJ		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
DIELDRIN	2 U		3.5 U	3.5 U	3.7 U		22 J	3.6 U					
ENDOSULFAN I	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
ENDOSULFAN II	2 U		3.5 U	9 J	3.7 U		3.6 U	4.8 J					
ENDOSULFAN SULFATE	2 U		5 J	12 J	3.7 U		3.6 U	4.2 J					
ENDRIN	2 U		3.5 U	3.5 U	3.7 U		3.6 U	3.6 U					
ENDRIN ALDEHYDE	3.7 R		3.5 U	4.3	3.7 U		3.6 U	7.6 J					
ENDRIN KETONE	2 U		9.4 J	23	3.7 U		3.6 U	13					
GAMMA-BHC (LINDANE)	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
GAMMA-CHLORDANE	0.99 U		2.3 J	1.7 U	1.8 U		1.8 U	1.8 U					
HEPTACHLOR	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U					
HEPTACHLOR EPOXIDE	0.99 U		13 J	26 J	1.8 U		2.7 J	21 J					
METHOXYCHLOR	9.9 U		26 J	58 J	18 U		18 U	30 J					
TOTAL AROCLOR	31 U		39.9 U	39.9 U	42.1 U		41.1 U	41.1 U				46	7.4 U
TOXAPHENE	31 U		170 U	170 U	180 U		180 U	180 U					
HERBICIDES (UG/KG)													
2,4,5-T													
2,4,5-TP (SILVEX)													
2,4-D													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
2,4-DB													
DALAPON													
DICAMBA													
DICHLOROPROP													
DINOSEB													
MCPA													
MCPP													
METALS (MG/KG)													
ALUMINUM	5900		5230 J	5680 J	8950 J		5230 J	8890 J				10000	9200
ANTIMONY	0.72 U		0.19 UJ	0.2 UJ	0.18 UJ		0.2 UJ	1.4 UJ				0.35	0.07 U
ARSENIC	11 J		10.4	7.3	2.8		1.7	8.1				5.3	0.75
BARIUM	13 J		22.4	22.2	15.8 J		19	123				39	15
BERYLLIUM	0.4 J		0.45 J	0.37 J	0.8		0.4 J	0.76				0.4	0.27 U
CADMIUM	0.33 J		0.22 U	0.25 J	0.21 U		0.23 U	0.32 J				0.42	0.1 U
CALCIUM	240 U		1140	1110	676 J		1550	2570				1400 J	750 J
CHROMIUM	9.5		12.3	10.9	9.2 J		6.8	149				15	10
COBALT	2.7 J		3.6	3.6	3.4		2.4 J	5.9				3.5	2.6
COPPER	36		11.8	9.3	17		6.5	18.2				15	3.4
IRON	10000		12200	9970	13400 J		8310	16100				16000	11000
LEAD	7.8		141	75.6	7.7 J		32.1	1280	550	503	456	100 J	7.1 J
MAGNESIUM	1200		1850	1760	2050 J		1240	2320				1900 J	2000 J
MANGANESE	66		180	138	157 J		132	207				210 J	130 J
MERCURY	0.036 J		0.09 UJ	0.09 UJ	0.07 UJ		0.08 UJ	0.05 UJ				0.15	0.011 J
NICKEL	5.5 J		9.2	8.8	6.6		5.9	14.6				9.2	6.5
POTASSIUM	170 U		292	321	237		283	602				290	320
SELENIUM	2.6 J		0.33 J	0.32 U	0.82 J		0.32 U	0.52 J				0.96	0.6 J
SILVER	0.14 R		0.25 UJ	0.27 UJ	0.24 UJ		0.27 UJ	0.23 UJ				0.39	0.078 U
SODIUM	73 U		54	50.2 U	53.5		41.7 U	235				58 J	51 J
THALLIUM	0.72 UJ		0.3 U	0.33 U	0.29 U		0.33 U	0.28 U				0.083 U	0.075 U
VANADIUM	12		27.9	24.1	16.6 J		16.1	45.2				25	16
ZINC	21		46.2	41.3	28 J		55.6	150				78	23
MISCELLANEOUS PARAMETERS (%)													
PERCENT MOISTURE	12.6											22	11
PERCENT SOLIDS													
TOTAL SOLIDS			96	96	91		91	92					
MISCELLANEOUS PARAMETERS (MG/KG)													
CYANIDE	1.2 U		0.21 U	0.22 U	0.23 U		0.23 U	0.22 U					
EPH MADEP (UG/KG)													

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39	EU39	EU39	EU40	EU41
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027	19981027	19981027	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1	1	1	1	2	2
C11-C22 AROMATICS			60000 J	34000 J	18000 U		23000 UJ	43000 J					
C11-C22 AROMATICS (WEIGHTED 1.0)													
C11-C22 AROMATICS-UNADJ													
C19-C36 ALIPHATICS			14000	26000	6600 U		43000	16000					
C19-C36 ALIPHATICS (WEIGHTED 0.005)													
C9-C18 ALIPHATICS			9000 J	8900 J	8200 J		8000 J	9800 J					
C9-C18 ALIPHATICS (WEIGHTED 0.05)													
EXTRACTABLE PETROLEUM HYDROCARBONS			83000 J	69000 J	31000 U		74000 J	69000 J					
DIOXINS/FURANS (NG/KG)													
1,2,3,4,6,7,8,9-OCDD	1900	50.2				203							
1,2,3,4,6,7,8,9-OCDF	47	0.986 U				24							
1,2,3,4,6,7,8-HPCDD	220	1.04 J				21.2							
1,2,3,4,6,7,8-HPCDF	40	0.404 J				17.5							
1,2,3,4,7,8,9-HPCDF	2 U	0.986 U				0.952 J							
1,2,3,4,7,8-HXCDD	2.4 U	0.493 U				0.408 J							
1,2,3,4,7,8-HXCDF	4.1 J	0.247 U				3.92							
1,2,3,6,7,8-HXCDD	9	0.493 U				1.3 J							
1,2,3,6,7,8-HXCDF	2.8 U	0.247 U				4.06							
1,2,3,7,8,9-HXCDD	4.1 J	0.493 U				0.937 J							
1,2,3,7,8,9-HXCDF	0.8 U	0.986 U				1.09 J							
1,2,3,7,8-PECDD	0.67 U	0.247 U				0.534 J							
1,2,3,7,8-PECDF	1.1 U	0.493 U				0.87 J							
2,3,4,6,7,8-HXCDF	2.1 U	0.247 U				8.9							
2,3,4,7,8-PECDF	3.2 J	0.142 J				14.6							
2,3,7,8-TCDD	0.32 U	0.197 U				1.68							
2,3,7,8-TCDF	7.1	0.194 UJ				1.15 UJ							
TEQ	6.57	0.0721 J				9.15 J							
TEQ HALFND	7.5	0.477 J				9.2 J							
TOTAL HPCDD	440	2.54 J				46.2							
TOTAL HPCDF	96	0.563 J				32.3 J							
TOTAL HXCDD	59	0.493 U				11.7							
TOTAL HXCDF	56	0.431 J				92.9							
TOTAL PECDD	2.3 U	0.247 U				7.16 J							
TOTAL PECDF	26	0.664 J				124 J							
TOTAL TCDD	0.32 U	0.197 U				4.52 J							
TOTAL TCDF	77	0.922 J				39 J							

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
VOLATILES (UG/KG)										
1,1,1-TRICHLOROETHANE										
1,1,2,2-TETRACHLOROETHANE										
1,1,2-TRICHLOROETHANE										
1,1-DICHLOROETHANE										
1,1-DICHLOROETHENE										
1,2-DIBROMO-3-CHLOROPROPANE										
1,2-DIBROMOETHANE										
1,2-DICHLOROBENZENE										
1,2-DICHLOROETHANE										
1,2-DICHLOROPROPANE										
1,3-DICHLOROBENZENE										
1,4-DICHLOROBENZENE										
2-BUTANONE										
2-HEXANONE										
4-METHYL-2-PENTANONE										
ACETONE										
BENZENE										
BROMODICHLOROMETHANE										
BROMOFORM										
BROMOMETHANE										
CARBON DISULFIDE										
CARBON TETRACHLORIDE										
CHLOROBENZENE										
CHLORODIBROMOMETHANE										
CHLOROETHANE										
CHLOROFORM										
CHLOROMETHANE										
CIS-1,2-DICHLOROETHENE										
CIS-1,3-DICHLOROPROPENE										
ETHYLBENZENE										
M+P-XYLENES										
METHYLENE CHLORIDE										
STYRENE										
TETRACHLOROETHENE										
TOLUENE										
TOTAL 1,2-DICHLOROETHENE										
TOTAL XYLENES										
TRANS-1,2-DICHLOROETHENE										

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
TRANS-1,3-DICHLOROPROPENE										
TRICHLOROETHENE										
VINYL CHLORIDE										
VPH MADEP (UG/KG)										
C5-C8 ALIPHATICS										
C5-C8 ALIPHATICS (WEIGHTED 0.5)										
C5-C8 ALIPHATICS-UNADJ										
C9-C10 AROMATICS										
C9-C10 AROMATICS (WEIGHTED 1.0)										
C9-C12 ALIPHATICS										
C9-C12 ALIPHATICS (WEIGHTED 0.05)										
C9-C12 ALIPHATICS-UNADJ										
METHYL TERT-BUTYL ETHER										
O-XYLENE										
TOTAL XYLENES										
VOLATILE PETROLEUM HYDROCARBONS										
SEMIVOLATILES (UG/KG)										
1,2,4-TRICHLOROBENZENE										
2,2'-OXYBIS(1-CHLOROPROPANE)										
2,4,5-TRICHLOROPHENOL										
2,4,6-TRICHLOROPHENOL										
2,4-DICHLOROPHENOL										
2,4-DIMETHYLPHENOL										
2,4-DINITROPHENOL										
2,4-DINITROTOLUENE										
2,6-DINITROTOLUENE										
2-CHLORONAPHTHALENE										
2-CHLOROPHENOL										
2-METHYLNAPHTHALENE	20 UJ	17 UJ	19 UJ	55 J	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
2-METHYLPHENOL										
2-NITROANILINE										
2-NITROPHENOL										
3&4-METHYLPHENOL										
3,3'-DICHLOROBENZIDINE										
3-NITROANILINE										
4,6-DINITRO-2-METHYLPHENOL										
4-BROMOPHENYL PHENYL ETHER										
4-CHLORO-3-METHYLPHENOL										

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
4-CHLOROANILINE										
4-CHLOROPHENYL PHENYL ETHER										
4-METHYLPHENOL										
4-NITROANILINE										
4-NITROPHENOL										
ACENAPHTHENE	20 UJ	17 UJ	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
ACENAPHTHYLENE	8 J	38 J	19 UJ	110 J	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
ANTHRACENE	10 J	38 J	9 J	190 J	8 J	8 J	8 J	19 UJ	19 UJ	19 UJ
BAP EQUIVALENT-HALFND	69.3 J	129 J	81 J	469 J	63.6 J	65.2 J	66.8 J	19 UJ	32.2 J	19 UJ
BAP EQUIVALENT-POS	47.3 J	112 J	60.1 J	354 J	43.8 J	45.4 J	47 J	19 UJ	2.21 J	19 UJ
BENZO(A)ANTHRACENE	38 J	85 J	34 J	290 J	33 J	32 J	31 J	19 UJ	10 J	19 UJ
BENZO(A)PYRENE	37 J	81 J	47 J	260 J	35 J	36.5 J	38 J	19 UJ	19 UJ	19 UJ
BENZO(B)FLUORANTHENE	62 J	160 J	93 J	620 J	53 J	54.5 J	56 J	19 UJ	12 J	19 UJ
BENZO(G,H,I)PERYLENE	23 J	51 J	26 J	200 J	22 J	23 J	24 J	19 UJ	19 UJ	19 UJ
BENZO(K)FLUORANTHENE	26 J	67 J	33 J	210 J	20 J	22 J	24 J	19 UJ	19 UJ	19 UJ
BIS(2-CHLOROETHOXY)METHANE										
BIS(2-CHLOROETHYL)ETHER										
BIS(2-ETHYLHEXYL)PHTHALATE										
BUTYL BENZYL PHTHALATE										
CARBAZOLE										
CHRYSENE	49 J	110 J	69 J	400 J	38 J	41 J	44 J	19 UJ	7 J	19 UJ
DIBENZO(A,H)ANTHRACENE	40 UJ	35 UJ	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ
DIBENZOFURAN										
DIETHYL PHTHALATE										
DIMETHYL PHTHALATE										
DI-N-BUTYL PHTHALATE										
DI-N-OCTYL PHTHALATE										
FLUORANTHENE	81 J	200 J	100 J	570 J	68 J	63 J	58 J	19 UJ	14 J	19 UJ
FLUORENE	20 UJ	10 J	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
HEXACHLOROBENZENE										
HEXACHLOROBUTADIENE										
HEXACHLOROCYCLOPENTADIENE										
HEXACHLOROETHANE										
INDENO(1,2,3-CD)PYRENE	40 UJ	55 J	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ
ISOPHORONE										
NAPHTHALENE	20 UJ	17 UJ	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
NITROBENZENE										
N-NITROSO-DI-N-PROPYLAMINE										
N-NITROSODIPHENYLAMINE										

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
PENTACHLOROPHENOL										
PHENANTHRENE	35 J	98 J	64 J	320 J	29 J	26 J	23 J	19 UJ	19 UJ	19 UJ
PHENOL										
PYRENE	69 J	160 J	98 J	610 J	59 J	58 J	57 J	19 UJ	15 J	19 UJ
TOTAL PAHS	438 J	1150 J	573 J	3840 J	365 J	364 J	363 J	21.2 UJ	58 J	21.1 UJ
PESTICIDES/PCBS (UG/KG)										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
ALDRIN										
ALPHA-BHC										
ALPHA-CHLORDANE										
AROCLOR-1016	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1221	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1232	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1242	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1248	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1254	8 U	69 U	7.6 U	8.5 U	7.1 U	7.1 U	7.1 U	7.6 U	7.3 U	7.4 U
AROCLOR-1260	8 U	710	7.6 U	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
BETA-BHC										
DELTA-BHC										
DIELDRIN										
ENDOSULFAN I										
ENDOSULFAN II										
ENDOSULFAN SULFATE										
ENDRIN										
ENDRIN ALDEHYDE										
ENDRIN KETONE										
GAMMA-BHC (LINDANE)										
GAMMA-CHLORDANE										
HEPTACHLOR										
HEPTACHLOR EPOXIDE										
METHOXYCHLOR										
TOTAL AROCLOR	8 U	710	7.6 U	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
TOXAPHENE										
HERBICIDES (UG/KG)										
2,4,5-T										
2,4,5-TP (SILVEX)										
2,4-D										

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
2,4-DB										
DALAPON										
DICAMBA										
DICHLOROPROP										
DINOSEB										
MCPA										
MCPP										
METALS (MG/KG)										
ALUMINUM	11000	7600	6800	8000	10000	10000	10000	7900	8500	6400
ANTIMONY	0.12 U	0.21	0.24 U	0.55	0.16 U	0.16 U	0.16 U	0.07 U	0.11 U	0.12 U
ARSENIC	2.3	2.1	1.7	7.2	1.4	1.35	1.3	1.3	3.4	36
BARIUM	21	22	19	35	17	16.5	16	11	21	26
BERYLLIUM	0.39 J	0.43	0.58	0.36	0.53	0.405 J	0.28 J	0.27 J	0.45	0.56
CADMIUM	0.21	0.36	0.34	0.58	0.25	0.235	0.22	0.18	0.19	0.2
CALCIUM	610	1400	1000	1000	830	865	900	1700	1400	1200
CHROMIUM	9.3	11	7.9	14	11	10.3	9.6	16	9.9	7.9
COBALT	3.7	4	4.9	3.8	3.1	2.9	2.7	6.3	5.2	4
COPPER	6.9 J	10 J	11 J	25 J	5.7 J	5.25 J	4.8 J	7.9 J	8.7 J	6 J
IRON	19000	16000	14000	14000	13000	12000	11000	11000	20000	45000
LEAD	16	35	20	320	33	28.5	24	10	8.1	16
MAGNESIUM	2000	2200	2400	1900	2100	2000	1900	4900	2800	1700
MANGANESE	240 J	310 J	390 J	220 J	160 J	145 J	130 J	220 J	310 J	280 J
MERCURY	0.017 J	0.012 J	0.007 J	0.06	0.044	0.038	0.032	0.002 J	0.001 J	0.002 J
NICKEL	7.2	7.7	8.8	8.9	7.6	7.35	7.1	14	9.3	6.1
POTASSIUM	380 J	620 J	400 J	340 J	320 J	315 J	310 J	300 J	420 J	330 J
SELENIUM	0.42 J	0.31 J	0.3 J	0.38 J	0.38 J	0.34 J	0.3 J	0.59 U	0.6 U	0.64 U
SILVER	0.095 J	0.079 U	0.08 U	0.076 J	0.094 U	0.096 U	0.098 U	0.091 U	0.077 U	0.075 U
SODIUM	45 J	77	58 J	43 J	45 J	52 J	59 J	85	80 J	120
THALLIUM	0.1 U	0.066 U	0.077 U	0.092 U	0.077 U	0.0755 U	0.074 U	0.079 U	0.081 U	0.085 U
VANADIUM	20	21	15	25	17	16.5	16	17	15	18
ZINC	38	44	58	81	40	38.5	37	40	36	29
MISCELLANEOUS PARAMETERS (%)										
PERCENT MOISTURE	17	4	13	22	8	7.5	7	12	10	10
PERCENT SOLIDS										
TOTAL SOLIDS										
MISCELLANEOUS PARAMETERS (MG/KG)										
CYANIDE										
EPH MADEP (UG/KG)										

TABLE C-1
ANALYTICAL RESULTS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
TOP DEPTH	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2	2	2
C11-C22 AROMATICS										
C11-C22 AROMATICS (WEIGHTED 1.0)										
C11-C22 AROMATICS-UNADJ										
C19-C36 ALIPHATICS										
C19-C36 ALIPHATICS (WEIGHTED 0.005)										
C9-C18 ALIPHATICS										
C9-C18 ALIPHATICS (WEIGHTED 0.05)										
EXTRACTABLE PETROLEUM HYDROCARBONS										
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD		4610			768	700	633			
1,2,3,4,6,7,8,9-OCDF		20.3			6.39	6.16	5.94			
1,2,3,4,6,7,8-HPCDD		270			31	26.6	22.2			
1,2,3,4,6,7,8-HPCDF		30.6			3.96	3.63	3.3			
1,2,3,4,7,8,9-HPCDF		2.27 J			0.99 U	0.989 U	0.988 U			
1,2,3,4,7,8-HXCDD		2.23 J			0.349 J	0.278 J	0.206 J			
1,2,3,4,7,8-HXCDF		4.46			0.744 J	0.726 J	0.709 J			
1,2,3,6,7,8-HXCDD		5.83			0.814 J	0.67 J	0.525 J			
1,2,3,6,7,8-HXCDF		3.71			1.06 J	0.903 J	0.746 J			
1,2,3,7,8,9-HXCDD		4.18			0.791 J	0.596 J	0.4 J			
1,2,3,7,8,9-HXCDF		0.918 J			0.366 J	0.43 J	0.988 U			
1,2,3,7,8-PECDD		4.1 J			0.318 J	0.221 J	0.247 U			
1,2,3,7,8-PECDF		1.53 J			0.353 J	0.3 J	0.494 U			
2,3,4,6,7,8-HXCDF		7.59			2.31 J	2 J	1.69 J			
2,3,4,7,8-PECDF		10.6			3.58	2.89 J	2.2 J			
2,3,7,8-TCDD		0.277 U			0.492 J	0.296 J	0.198 U			
2,3,7,8-TCDF		4.15			0.428 UJ	0.446 UJ	0.464 UJ			
TEQ		15.1 J			3.12 J	2.32 J	1.53 J			
TEQ HALFND		15.2 J			3.15 J	2.5 J	1.84 J			
TOTAL HPCDD		827			73.2	62.2	51.2			
TOTAL HPCDF		77.4			9.82	8.99	8.16			
TOTAL HXCDD		67.4			7.67 J	5.8 J	3.92 J			
TOTAL HXCDF		88.3 J			24 J	20 J	15.9 J			
TOTAL PECDD		15.4			2.77 J	1.66 J	0.54 J			
TOTAL PECDF		104 J			34.1 J	28.2 J	22.4			
TOTAL TCDD		0.885 J			0.901 J	0.5 J	0.198 U			
TOTAL TCDF		33.4 J			8.15 J	7.02 J	5.88 J			

TABLE C-2
ANALYTICAL RESULTS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

RIA ID	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID	IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
TOP DEPTH	5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH	7	5	5	5	7	7	7	8	8	8	8
VOLATILES (UG/KG)											
1,1,1-TRICHLOROETHANE	0.41 U	0.36 U	0.39 U	4 J	0.48 U	0.445 U	0.41 U				
1,1,2,2-TETRACHLOROETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,1,2-TRICHLOROETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,1,2-TRICHLOROTRIFLUOROETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,1-DICHLOROETHANE	0.41 U	0.36 U	0.39 U	3 J	0.48 U	0.445 U	0.41 U				
1,1-DICHLOROETHENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,2,4-TRICHLOROBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,2-DIBROMO-3-CHLOROPROPANE	0.69 U	0.61 U	0.64 U	0.81 UJ	0.8 U	0.745 U	0.69 U				
1,2-DIBROMOETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,2-DICHLOROBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,2-DICHLOROETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,2-DICHLOROPROPANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,3-DICHLOROBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
1,4-DICHLOROBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
2-BUTANONE	3.5 U	3 U	3.2 U	4 UJ	4 U	3.7 U	3.4 U				
2-HEXANONE	0.41 UJ	0.36 UJ	0.39 UJ	0.48 UJ	0.48 UJ	0.445 UJ	0.41 UJ				
4-METHYL-2-PENTANONE	0.41 UJ	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
ACETONE	28 U	14 U	13 U	9 U	37 U	34 U	31 U				
BENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
BROMODICHLOROMETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
BROMOFORM	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
BROMOMETHANE	0.41 UJ	0.36 UJ	0.39 UJ	0.48 UJ	0.48 UJ	0.445 UJ	0.41 UJ				
CARBON DISULFIDE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CARBON TETRACHLORIDE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CHLOROBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CHLORODIBROMOMETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CHLOROETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				

TABLE C-2
ANALYTICAL RESULTS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

RIA ID	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID	IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
TOP DEPTH	5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH	7	5	5	5	7	7	7	8	8	8	8
CHLOROFORM	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CHLOROMETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CIS-1,2-DICHLOROETHENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CIS-1,3-DICHLOROPROPENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
CYCLOHEXANE	0.69 U	0.61 U	0.64 U	0.81 UJ	0.8 U	0.745 U	0.69 U				
DICHLORODIFLUOROMETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
ETHYLBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
ISOPROPYLBENZENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
M+P-XYLENES	0.83 U	0.73 U	0.77 U	0.97 UJ	0.96 U	0.895 U	0.83 U				
METHYL ACETATE	0.69 U	0.61 UR	0.64 UR	0.81 UR	0.8 UR	0.745 UR	0.69 UR				
METHYL CYCLOHEXANE	0.41 U	0.61 U	0.64 U	0.81 UJ	0.8 U	0.745 U	0.69 U				
METHYLENE CHLORIDE	0.41 UJ	0.36 UJ	0.39 UJ	0.48 UR	0.48 UJ	0.445 UJ	0.41 UJ				
O-XYLENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
STYRENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TETRACHLOROETHENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TOLUENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TOTAL 1,2-DICHLOROETHENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TOTAL XYLENES	1 U	0.91 U	0.97 U	1.2 UJ	1.2 U	1.1 U	1 U				
TRANS-1,2-DICHLOROETHENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TRANS-1,3-DICHLOROPROPENE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
TRICHLOROETHENE	0.41 U	0.36 U	0.39 U	7 J	0.48 U	0.445 U	0.41 U				
TRICHLOROFLUOROMETHANE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
VINYL CHLORIDE	0.41 U	0.36 U	0.39 U	0.48 UJ	0.48 U	0.445 U	0.41 U				
SEMIVOLATILES (UG/KG)											
2-METHYLNAPHTHALENE	19 J	17 UJ	17 UJ	33 J	7 J	7.75 J	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
ACENAPHTHENE	73 J	17 UJ	17 UJ	19 J	17 UJ	17 UJ	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
ACENAPHTHYLENE	55 J	17 UJ	17 UJ	17 UJ	15 J	13 J	11 J	19 UJ	20 UJ	18 UJ	19 UJ
ANTHRACENE	150 J	17 UJ	17 UJ	41 J	39 J	34 J	29 J	19 UJ	20 UJ	18 UJ	19 UJ

TABLE C-2
ANALYTICAL RESULTS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

RIA ID	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID	IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
TOP DEPTH	5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH	7	5	5	5	7	7	7	8	8	8	8
BAP EQUIVALENT-HALFND	584 J	30.6 J	17 UJ	244 J	152 J	136 J	121 J	19 UJ	20 UJ	18 UJ	19 UJ
BAP EQUIVALENT-POS	584 J	11.8 J	17 UJ	231 J	135 J	120 J	104 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(A)ANTHRACENE	520 J	15 J	17 UJ	220 J	140 J	125 J	110 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(A)PYRENE	380 J	9 J	17 UJ	170 J	98 J	86.5 J	75 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(B)FLUORANTHENE	650 J	13 J	17 UJ	290 J	170 J	150 J	130 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(G,H,I)PERYLENE	230 J	17 UJ	17 UJ	92 J	60 J	53.5 J	47 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(K)FLUORANTHENE	250 J	10 UJ	17 UJ	100 J	78 J	65 J	52 J	19 UJ	20 UJ	18 UJ	19 UJ
CHRYSENE	550 J	13 J	17 UJ	240 J	140 J	120 J	100 J	19 UJ	20 UJ	18 UJ	19 UJ
DIBENZO(A,H)ANTHRACENE	64 J	34 UJ	34 UJ	26 UJ	35 UJ	35 UJ	35 UJ	37 UJ	40 UJ	36 UJ	37 UJ
FLUORANTHENE	870 J	24 J	17 UJ	340 J	240 J	220 J	200 J	19 UJ	20 UJ	18 UJ	19 UJ
FLUORENE	89 J	17 UJ	17 UJ	17 J	16 J	13.5 J	11 J	19 UJ	20 UJ	18 UJ	19 UJ
INDENO(1,2,3-CD)PYRENE	200 J	34 UJ	34 UJ	86 J	49 J	44.5 J	40 J	37 UJ	40 UJ	36 UJ	37 UJ
NAPHTHALENE	33 J	17 UJ	17 UJ	11 J	12 J	10.2 J	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
PHENANTHRENE	610 J	11 J	17 UJ	190 J	150 J	135 J	120 J	19 UJ	20 UJ	18 UJ	19 UJ
PYRENE	910 J	20 J	17 UJ	370 J	210 J	185 J	160 J	19 UJ	20 UJ	18 UJ	19 UJ
TOTAL PAHS	5650 J	105 J	19 UJ	2220 J	1420 J	1250 J	1080 J	21.1 UJ	22.4 UJ	20.1 UJ	21.1 UJ
METALS (MG/KG)											
ALUMINUM	7300	6800	7300	6700	7900	7450	7000	3600	4200	4600	4400
ANTIMONY	0.3	0.083 U	0.056 U	0.13 U	0.53	0.49	0.45	0.066 U	0.094 U	0.069 U	0.065 U
ARSENIC	1.9	1.7	1.7	2.3	1.5	1.5	1.5	0.22 J	0.18 J	0.57	0.13 J
BARIUM	16	13	12	17	15	14.5	14	7.8	11	9.8	9.5
BERYLLIUM	0.37	0.4	0.54	0.52	0.38	0.4	0.42	0.17 U	0.26 J	0.27	0.26 U
CADMIUM	0.19	0.18	0.19	0.28	0.18 J	0.19 J	0.2	0.083 U	0.15	0.14	0.11 U
CALCIUM	1500	1000	1100	1700	1100	1100	1100	820	1300	1000	1100
CHROMIUM	10	11	9.7	8.9	9.2	8.25	7.3	4.7	6.3	6.2	5.5
COBALT	4.3	4.7	3.9	4.7	6.8	6.7	6.6	1.9	2.3	2.6	2.6
COPPER	9.6	9.7	9.4	12	9	8.65	8.3	3.6	4.6	6.1	6.5
IRON	13000	14000	18000	11000	14000	14000	14000	4900	6000	7100	6000

TABLE C-2
ANALYTICAL RESULTS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

RIA ID	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID	IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
TOP DEPTH	5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH	7	5	5	5	7	7	7	8	8	8	8
LEAD	20	6.6	6.5	16	8.1	7.8	7.5	2.6	3.6	3.5	3.5
MAGNESIUM	2100	2400	2300	2000	2400	2300	2200	1100	1300	1600	1400
MANGANESE	240 J	170 J	310 J	180 J	320 J	320 J	320 J	65 J	90 J	92 J	82 J
MERCURY	0.018 J	0.0022 J	0.002 J	0.012 J	0.0077 J	0.0081 J	0.0085 J	0.01 U	0.013 U	0.011 U	0.01 U
NICKEL	8.5	7.8	7.8	8.9	8.9	8	7.1	3.8	4.5	5.1	5
POTASSIUM	290 J	440 J	360 J	360 J	360 J	380 J	400 J	250 J	310 J	310 J	270 J
SELENIUM	0.65 U	0.65 U	0.56 U	0.53 U	0.67 U	0.61 U	0.55 U	0.62 U	0.56 U	0.48 U	0.68 U
SILVER	0.092 U	0.084 U	0.08 U	0.09 U	0.082 U	0.0815 U	0.081 U	0.082 U	0.086 U	0.079 U	0.081 U
SODIUM	57 J	50 J	52 J	58 J	46 J	46.5 J	47 J	36 J	51 J	41 J	43 J
THALLIUM	0.087 U	0.087 U	0.074 U	0.09 J	0.09 U	0.082 U	0.074 U	0.083 U	0.074 U	0.065 U	0.091 U
VANADIUM	20	15	16	15	15	14.5	14	8.5	11	12	9.2
ZINC	42	38	40	40	33	34.5	36	17	19	26	23
MISCELLANEOUS PARAMETERS (%)											
PERCENT MOISTURE	5	2	2	4	4	4	4	10	18	8	11

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE	1 UJ	1 U	1 U							5 U	5 U		1 U				
1,1,2,2-TETRACHLOROETHANE	1 UJ	1 U	1 U							2 U	2 U		1 U				
1,1,2-TRICHLOROETHANE	1 UJ	1 U	1 U							3 U	3 U		1 U				
1,1-DICHLOROETHANE	1 UJ	1 U	1 U							5 U	5 U		1 U				
1,1-DICHLOROETHENE	1 UJ	1 U	1 U							2 U	2 U		1 U				
1,2-DIBROMO-3-CHLOROPROPANE	0.02 UJ	0.02 UJ											2 U				
1,2-DIBROMOETHANE	0.02 UJ	0.02 UJ											1 U				
1,2-DICHLOROBENZENE	1 UJ	1 U	1 U							5 U	5 U		1 U				
1,2-DICHLOROETHANE	1 UJ	1 U	1 U							2 UJ	2 UJ		1 U				
1,2-DICHLOROPROPANE	1 UJ	1 U	1 U							1 U	1 U		1 U				
1,3-DICHLOROBENZENE	1 UJ	1 U	1 U							5 U	5 U		1 U				
1,4-DICHLOROBENZENE	1 UJ	1 U	1 U							5 U	5 U		1 U				
2-BUTANONE	5 R	5 R	3 J							5 U	5 U		5 R				
2-HEXANONE	5 UJ	5 U	5 U							5 U	5 U		5 U				
4-METHYL-2-PENTANONE	5 UJ	5 U	5 R							5 U	5 U		5 U				
ACETONE	10 R	10 R	5 R							5.1	5 U		5 U				
BENZENE	1 UJ	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	5 U	1 U	5 U	5 U	5 U	5 U
BROMODICHLOROMETHANE	1 UJ	1 U	1 U							1 UJ	1 UJ		1 U				
BROMOFORM	1 UJ	1 U	1 U							4 UJ	4 UJ		1 U				
BROMOMETHANE	2 UJ	2 UJ	1 U							5 U	5 U		2 U				
CARBON DISULFIDE	1 UJ	1 U	1 U							4.5 J	2.6 J		1 U				
CARBON TETRACHLORIDE	1 UJ	1 U	1 U							1 U	1 U		1 U				
CHLOROBENZENE	1 UJ	1 U	1 U							2 U	2 U		1 U				
CHLORODIBROMOMETHANE	1 UJ	1 U	1 U							5 UJ	5 UJ		1 U				
CHLOROETHANE	2 UJ	2 UJ	1 U							5 U	5 U		2 U				
CHLOROFORM	1 UJ	1 U	1 U							5 U	5 U		1 U				
CHLOROMETHANE	2 UJ	2 UJ	1 U							5 U	5 U		2 U				
CIS-1,2-DICHLOROETHENE			1 U							5 U	5 U		1 U				
CIS-1,3-DICHLOROPROPENE	1 UJ	1 U	1 U							1 UJ	1 UJ		1 U				
ETHYLBENZENE	1 UJ	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	1 U	5 U	5 U	5 U	5 U
M+P-XYLENES			1 U	20 U						20 U			1 U	20 U	20 U		5 U
METHYL TERT-BUTYL ETHER	5 U			15 U	10 U	10 U	10 U	10 U	10 U	1 U	1 U	10 U		15 U	15 U	10 U	5 U
METHYLENE CHLORIDE	2 UJ	2 U	1 UJ							2 U	2 U		2 U				
O-XYLENE	1 UJ	1 U	1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U	1 U	10 U	10 U	10 U	5 U
STYRENE	1 UJ	1 UJ	1 U							5 U	5 U		1 U				
TETRACHLOROETHENE	1 UJ	1 U	1 U							1 U	1 U		1 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
TOLUENE	1 UJ	1 U	0.5 J	15 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	1 U	15 U	15 U	5 U	5 U
TOTAL 1,2-DICHLOROETHENE	1 UJ	1 U	1 U							5 U	5 U		1 U				
TOTAL XYLENES	1 UJ	1 U	1 U	20 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	1 U	15 U	15 U	5 U	5 U
TRANS-1,2-DICHLOROETHENE			1 U							5 U	5 U		1 U				
TRANS-1,3-DICHLOROPROPENE	1 UJ	1 U	1 U							1 UJ	1 UJ		1 U				
TRICHLOROETHENE	1 UJ	1 U	1 U							1 U	1 U		1 U				
VINYL CHLORIDE	2 UJ	2 U	1 U							1 U	1 U		1 U				
VOLATILE PETROLEUM HYDROCARBONS				20 U						20 U				20 U			
VPH MADEP (UG/L)																	
C5-C8 ALIPHATICS	100 U			20 U	40 U	40 U	40 U	160	40 U	20 U		40 U		20 U	20 U	40 U	200 U
C5-C8 ALIPHATICS (WEIGHTED 0.5)					20 U	20 U	20 U	80	20 U			20 U				20 U	
C9-C10 AROMATICS	100 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U				39	200 U
C9-C10 AROMATICS (WEIGHTED 1.0)					20 U	20 U	20 U	20 U	20 U			20 U				39	
C9-C12 ALIPHATICS	100 U			20 U	10 U	10 U	10 U	10 U	11	20 U		10 U		20 U	20 U	39	200 U
C9-C12 ALIPHATICS (WEIGHTED 0.05)					0.5 U	0.5 U	0.5 U	0.5 U	0.57			0.5 U				2	
SEMIVOLATILES (UG/L)																	
1,2,4-TRICHLOROBENZENE	3 U	3 U	10 U							5 U	5 U		5.1 U				
2,2'-OXYBIS(1-CHLOROPROPANE)	4 U	4 U	10 UJ							5 U	5 U		5.1 U				
2,4,5-TRICHLOROPHENOL	3 U	3 U	50 U							5 U	5 U		5.1 U				
2,4,6-TRICHLOROPHENOL	3 U	3 U	10 U							5 UJ	5 UJ		5.1 U				
2,4-DICHLOROPHENOL	3 U	3 U	10 U							5 U	5 U		5.1 U				
2,4-DIMETHYLPHENOL	3 U	3 U	10 U							5 U	5 U		5.1 U				
2,4-DINITROPHENOL	6 U	6 UJ	50 UJ							20 U	20 U		10 U				
2,4-DINITROTOLUENE	4 U	4 U	10 U							5 U	5 U		5.1 U				
2,6-DINITROTOLUENE	4 U	4 U	10 U							5 U	5 U		5.1 U				
2-CHLORONAPHTHALENE	3 U	3 U	10 U							5 U	5 U		5.1 U				
2-CHLOROPHENOL	3 U	3 U	10 U							5 U	5 U		5.1 U				
2-METHYLNAPHTHALENE	3 U	3 U	10 U	4.2 U	5 U	5 U	5 U	5 U	5 U	4 U	5 U	5 U	5.1 U	4 U	4.1 U	5 U	
2-METHYLPHENOL	4 U	4 U	10 U							5 U	5 U		5.1 U				
2-NITROANILINE	5 U	5 UJ	50 U							5 U	5 U		10 U				
2-NITROPHENOL	3 U	3 U	10 U							5 U	5 U		5.1 U				
3&4-METHYLPHENOL										5 U	5 U						
3,3'-DICHLOROBENZIDINE	4 U	4 U	20 U							5 U	5 U		5.1 U				
3-NITROANILINE	4 U	4 UJ	50 U							5 UJ	5 UJ		10 U				
4,6-DINITRO-2-METHYLPHENOL	6 U	6 UJ	50 U							20 UJ	20 UJ		10 U				
4-BROMOPHENYL PHENYL ETHER	5 U	5 U	10 U							5 U	5 U		5.1 U				
4-CHLORO-3-METHYLPHENOL	4 U	4 U	10 U							5 U	5 U		10 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
4-CHLOROANILINE	5 U	5 U	20 U							5 U	5 U		5.1 U				
4-CHLOROPHENYL PHENYL ETHER	4 U	4 U	10 U							5 U	5 U		5.1 U				
4-METHYLPHENOL	4 U	4 U	10 U										5.1 U				
4-NITROANILINE	4 U	4 UJ	50 UJ							5 U	5 U		10 U				
4-NITROPHENOL	5 U	5 UJ	50 U							20 U	20 U		10 U				
ACENAPHTHENE	3 U	3 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	7	
ACENAPHTHYLENE	4 U	4 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.1 J	
ANTHRACENE	4 U	4 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BAP EQUIVALENT-HALFND	0.02 UJ	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BAP EQUIVALENT-POS	0.02 UJ	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BENZO(A)ANTHRACENE	0.01 U	0.01 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BENZO(A)PYRENE	0.02 UJ	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BENZO(B)FLUORANTHENE	0.02 U	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BENZO(G,H,I)PERYLENE	0.02 U	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BENZO(K)FLUORANTHENE	0.008 U	0.008 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
BIS(2-CHLOROETHOXY)METHANE	4 U	4 U	10 U							5 U	5 U		5.1 U				
BIS(2-CHLOROETHYL)ETHER	4 U	4 U	10 U							5 U	5 U		5.1 U				
BIS(2-ETHYLHEXYL)PHTHALATE	3 J	7 U	10 U							1.1 J	1 J		5.1 U				
BUTYL BENZYL PHTHALATE	4 U	4 U	10 U							5 U	5 U		5.1 U				
CARBAZOLE	5 U	5 U	10 U							5 U	5 U		5.1 U				
CHRYSENE	3 U	3 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
DIBENZO(A,H)ANTHRACENE	0.02 U	0.02 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
DIBENZOFURAN	4 U	4 U	10 U							5 U	5 U		5.1 U				
DIETHYL PHTHALATE	3 U	3 U	10 UJ							5 U	5 U		5.1 U				
DIMETHYL PHTHALATE	3 U	3 U	10 U							5 U	5 U		5.1 U				
DI-N-BUTYL PHTHALATE	4 U	4 U	10 U							5 U	5 U		5.1 U				
DI-N-OCTYL PHTHALATE	4 U	4 U	10 U							5 U	5 U		5.1 U				
FLUORANTHENE	5 U	4.8 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
FLUORENE	4 U	4 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	3	
HEXACHLOROBENZENE	6 U	6 U	10 U							5 U	5 U		5.1 U				
HEXACHLOROBUTADIENE	4 U	4 U	10 U							5 U	5 U		5.1 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
HEXACHLOROCYCLOPENTADIENE	2 U	2 R	10 U							20 U	20 U		5.1 U				
HEXACHLOROETHANE	3 U	3 U	10 U							5 U	5 U		5.1 U				
INDENO(1,2,3-CD)PYRENE	0.04 U	0.04 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
ISOPHORONE	4 U	4 U	10 U							5 U	5 U		5.1 U				
NAPHTHALENE	3 U	3 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	25	5 U
NITROBENZENE			10 U							5 U	5 U		5.1 U				
N-NITROSO-DI-N-PROPYLAMINE	4 U	4 U	10 U							5 U	5 U		5.1 U				
N-NITROSODIPHENYLAMINE	4 U	4 U	10 U							5 U	5 U		5.1 U				
PENTACHLOROPHENOL			50 U							20 UJ	20 UJ		10 UJ				
PHENANTHRENE	5 U	4.8 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.5	
PHENOL	4 U	4 U	10 U							5 U	5 U		5.1 U				
PYRENE	4 U	4 U	10 U	4.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	5 U	0.2 U	5.1 U	4 U	4.1 U	0.2 U	
TOTAL PAHS				4.2 U	0.482 U	0.482 U	0.482 U	0.482 U	0.482 U	4 U	5 U	0.482 U	5.1 U	4 U	4.1 U	35.6 J	5 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/L)																	
1,1-BIPHENYL																	
1-METHYLNAPHTHALENE																	
1-METHYLPHENANTHRENE																	
2,3,5-TRIMETHYLNAPHTHALENE																	
2,6-DIMETHYLNAPHTHALENE																	
BENZO(E)PYRENE																	
DIBENZOTHIOPHENE																	
PERYLENE																	
TOTAL METHYLNAPHTHALENES					0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U				0.2	
PESTICIDES/PCBS (UG/L)																	
4,4'-DDD		0.01 U	0.09 U										0.013 UJ				
4,4'-DDE		0.02 U	0.09 U										0.013 UJ				
4,4'-DDT		0.01 U	0.09 U										0.013 UJ				
ALDRIN		0.04 U	0.04 U										0.006 UJ				
ALPHA-BHC		0.008 U	0.04 U										0.006 UJ				
ALPHA-CHLORDANE		0.01 U	0.04 U										0.006 UJ				
AROCLOR-1016		0.62 U	0.96 U							0.5 U	0.5 U		0.2 UJ				
AROCLOR-1221		0.61 U	1.9 U							0.5 U	0.5 U		0.2 UJ				
AROCLOR-1232		0.76 U	0.96 U							0.5 U	0.5 U		0.2 UJ				
AROCLOR-1242		0.54 U	0.96 U							0.5 U	0.5 U		0.2 UJ				
AROCLOR-1248		0.54 U	0.96 U							0.5 U	0.5 U		0.2 UJ				
AROCLOR-1254		0.68 U	0.96 U							0.5 U	0.5 U		0.2 UJ				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
AROCLOR-1260		0.14 U	0.96 U							0.5 U	0.5 U		0.2 UJ				
BETA-BHC		0.008 U	0.04 U										0.006 UJ				
DELTA-BHC		0.006 U	0.04 U										0.006 UJ				
DIELDRIN		0.01 U	0.09 U										0.013 UJ				
ENDOSULFAN I		0.005 U	0.04 U										0.006 UJ				
ENDOSULFAN II		0.02 U	0.09 U										0.013 UJ				
ENDOSULFAN SULFATE			0.09 U										0.013 UJ				
ENDRIN		0.01 U	0.09 U										0.013 UJ				
ENDRIN ALDEHYDE		0.02 U	0.09 U										0.013 UJ				
ENDRIN KETONE			0.09 U										0.013 UJ				
GAMMA-BHC (LINDANE)		0.004 U	0.04 U										0.006 UJ				
GAMMA-CHLORDANE		0.01 U	0.04 U										0.006 UJ				
HEPTACHLOR		0.03 U	0.04 U										0.006 UJ				
HEPTACHLOR EPOXIDE		0.006 U	0.04 U										0.006 UJ				
METHOXYCHLOR			0.48 U										0.064 UJ				
TOTAL AROCLOR										0.5 U	0.5 U		0.2 UJ				
TOXAPHENE		2.4 U	4.8 U										0.2 UJ				
METALS (UG/L)																	
ALUMINUM	173 J	616 J	130							296 U	200 U		1100 J				
ANTIMONY	1 U	1 U	50 U							5 U	5 U		10 U				
ARSENIC	2 U	2 U	5 U		1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	7.1	5 U	1.7 UJ	5 U			1.7 UJ	
BARIUM	9.2 J	14.6 J	40		9.3	9.35	9.4	16.7	34.9	200 U	200 U	57.7	25 U			118	
BERYLLIUM	0.23 J	1 U	3 U							4 U	4 U		5 U				
CADMIUM	0.6 U	0.6 U	5 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U	0.2 U	5 U			0.2 U	
CALCIUM	2610	6090 J	21000							5000 U	5000 U		4600 J				
CHROMIUM	4 U	3 U	5 U		0.5 U	0.5 U	0.5 U	1.2	1.3	10 U	10 U	1	1.1 J			1.3	
COBALT	7 U	4 UJ	10 U							50 U	50 U		50 U				
COPPER	5 U	2.6 J	10 U							25 U	25 U		25 U				
IRON	232 U	694 J	150							234	184 U		900 J				
LEAD	1 U	8.2	5 UJ		3.5 U	3.5 U	2.2 U	6.7 U	3.6 U	3 UJ	46 J	4 U	1.5 J			2.5 U	
MAGNESIUM	239 J	764 J	3400							5000 U	5000 U		710 J				
MANGANESE	8 U	110 J	240							29.1 J	69 J		250				
MERCURY	0.1 U	0.1 U	0.2 U		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.1 U	0.02 U			0.1 U	
NICKEL	5 U	5 UJ	5 U							40 U	40 U		40 U				
POTASSIUM	671 J	957 J	2200							5000 U	5000 U		1900 J				
SELENIUM	2 U	3 U	10 U		2.3 U	1.875	2.6 J	2.3 U	2.3 U	5 U	5 U	2.3 U	5 UJ			2.3 U	
SILVER	1 U	1 U	5 U		0.8 U	0.8 U	0.8 U	0.8 U	1 J	10 U	10 U	0.8 U	7 U			1.4 J	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU				EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU07	EU10	EU10	EU10	EU10
LOCATION ID	MW09-011	MW11-132	MW11-202	B14-MW-100	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04	MW07-301	B116-MW-05	B116-MW-05	B116-MW-05	B116-MW-06
SAMPLE ID	MW09-011-NWG-011599	MW11-132-NWG-012899	MW11-202-NWG-053001	B14GW100AA	B116-OGW1A	B116-OGW1A-AVG	B116-OGW1A-D	B116-OGW2A	B116-OGW3A	B116GW04AA	B116GW04AB	B116-OGW4A	MW07-301-NGW-111402	B116GW05AA	B116GW05AB	B116-OGW5A	OGW6A-AA96712
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19990115	19990128	20010530	19990706	19970320	19970320	19970320	19970320	19970321	19990708	19990708	19970321	20021114	19990708	19990708	19970321	19980203
SODIUM	2300	2630	7900							26400	28000		37000 J				
THALLIUM	1 U	1 U	10 U							2 U	2 U		5 U				
VANADIUM	3 U	3 U	10 U							50 U	50 U		1.9 U				
ZINC	12 U	12 U	20 U							74.3	56.8		23 U				
MISCELLANEOUS PARAMETERS (UG/L)																	
CYANIDE		10 UJ	5 U										10 U				
FIELD (MG/L)																	
DISSOLVED OXYGEN	3.2	41															
FIELD (MV)																	
OXIDATION REDUCTION POTENTIAL	198	21.9															
FIELD (S.U.)																	
PH	6.47	8.21															
FIELD (MS/CM)																	
CONDUCTIVITY		24															
SPECIFIC CONDUCTANCE	0.062	0.039															
FIELD (C)																	
TEMPERATURE	9	5.04															
FIELD (NTU)																	
TURBIDITY	89	31															
EPH MADEP (UG/L)																	
C10-C22 AROMATICS																	
C11-C22 AROMATICS	180 U	160 U		100 U	230 U	230 U	240 U	230 U	200 U	100 U		190 U		100 U	100 U	220 U	
C11-C22 AROMATICS (WEIGHTED 1.0)					230 U	230 U	240 U	230 U	200 U			190 U				220 U	
C19-C36 ALIPHATICS	84 UJ	77 UJ			94 U	94 U	97 U	95 U	75 U			98 U				96 U	
C19-C36 ALIPHATICS (WEIGHTED 0.005)					0.47 U	0.47 U	0.49 U	0.48 U	0.37 U			0.49 U				0.48 U	
C9-C18 ALIPHATICS	63 U	58 UJ			120 U	120 U	130 U	130 U	73 U			84 U				89 U	
C9-C18 ALIPHATICS (WEIGHTED 0.05)					6 U	6 U	6.6 U	6.6 U	3.6 U			4.2 U				4.5 U	
EXTRACTABLE PETROLEUM HYDROCARBONS																	
TCLP VOLATILES (UG/L)																	
BENZENE										1 U							

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE												5 U					
1,1,2,2-TETRACHLOROETHANE												2 U					
1,1,2-TRICHLOROETHANE												3 U					
1,1-DICHLOROETHANE												5 U					
1,1-DICHLOROETHENE												2 U					
1,2-DIBROMO-3-CHLOROPROPANE																	
1,2-DIBROMOETHANE						1 U	1 U	1 U			1 U					1 U	
1,2-DICHLOROBENZENE													5 U				
1,2-DICHLOROETHANE												2 UJ					
1,2-DICHLOROPROPANE												1 U					
1,3-DICHLOROBENZENE													5 U				
1,4-DICHLOROBENZENE													5 U				
2-BUTANONE												5 U					
2-HEXANONE												5 U					
4-METHYL-2-PENTANONE												5 U					
ACETONE												5 U					
BENZENE	5 U	5 U				1 U	1 U	1 U	5 U		1 U	1 U		5 U		1 U	5 U
BROMODICHLOROMETHANE												1 UJ					
BROMOFORM												4 UJ					
BROMOMETHANE												5 U					
CARBON DISULFIDE												5 U					
CARBON TETRACHLORIDE												1 U					
CHLOROBENZENE												2 U					
CHLORODIBROMOMETHANE												5 UJ					
CHLOROETHANE												5 U					
CHLOROFORM												5 U					
CHLOROMETHANE												5 U					
CIS-1,2-DICHLOROETHENE												5 U					
CIS-1,3-DICHLOROPROPENE												1 UJ					
ETHYLBENZENE	5 U	5 U				1 U	1 U	1 U	5 U		1 U	1 U		5 U		1 U	5 U
M+P-XYLENES	5 U	5 U				2 U	2 U	2 U	5 U		2 U	20 U		5 U		2 U	
METHYL TERT-BUTYL ETHER	5 U	5 U				2.9	2.75	2.6	5 U		5.7	1 U		5 U		1 U	15 U
METHYLENE CHLORIDE												2 U					
O-XYLENE	5 U	5 U				1 U	1 U	1 U	5 U		1 U	10 U		5 U		1 U	5 U
STYRENE												5 U					
TETRACHLOROETHENE												1 U					

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
TOLUENE	5 U	5 U				1 U	1 U	1 U	5 U		1 U	1 U		5 U		1 U	5 U
TOTAL 1,2-DICHLOROETHENE												5 U					
TOTAL XYLENES	5 U	5 U				1.5 U	1.5 U	1.5 U	5 U		1.5 U	1 U		5 U		1.5 U	5 U
TRANS-1,2-DICHLOROETHENE												5 U					
TRANS-1,3-DICHLOROPROPENE												1 UJ					
TRICHLOROETHENE												1 U					
VINYL CHLORIDE												1 U					
VOLATILE PETROLEUM HYDROCARBONS												20 U					
VPH MADEP (UG/L)																	
C5-C8 ALIPHATICS	200 U	200 U							200 U			20 U		200 U			75 U
C5-C8 ALIPHATICS (WEIGHTED 0.5)																	
C9-C10 AROMATICS	200 U	200 U							200 U					200 U			20 U
C9-C10 AROMATICS (WEIGHTED 1.0)																	
C9-C12 ALIPHATICS	200 U	200 U							200 U			20 U		200 U			65 U
C9-C12 ALIPHATICS (WEIGHTED 0.05)																	
SEMIVOLATILES (UG/L)																	
1,2,4-TRICHLOROBENZENE													5 U				
2,2'-OXYBIS(1-CHLOROPROPANE)													5 U				
2,4,5-TRICHLOROPHENOL													5 U				
2,4,6-TRICHLOROPHENOL													5 UJ				
2,4-DICHLOROPHENOL													5 U				
2,4-DIMETHYLPHENOL													5 U				
2,4-DINITROPHENOL													20 U				
2,4-DINITROTOLUENE													5 U				
2,6-DINITROTOLUENE													5 U				
2-CHLORONAPHTHALENE													5 U				
2-CHLOROPHENOL													5 U				
2-METHYLNAPHTHALENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
2-METHYLPHENOL													5 U				
2-NITROANILINE													5 U				
2-NITROPHENOL													5 U				
3&4-METHYLPHENOL													5 U				
3,3'-DICHLOROBENZIDINE													5 U				
3-NITROANILINE													5 UJ				
4,6-DINITRO-2-METHYLPHENOL													20 UJ				
4-BROMOPHENYL PHENYL ETHER													5 U				
4-CHLORO-3-METHYLPHENOL													5 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
4-CHLOROANILINE													5 U				
4-CHLOROPHENYL PHENYL ETHER													5 U				
4-METHYLPHENOL																	
4-NITROANILINE													5 U				
4-NITROPHENOL													20 U				
ACENAPHTHENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
ACENAPHTHYLENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
ANTHRACENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BAP EQUIVALENT-HALFND			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BAP EQUIVALENT-POS			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BENZO(A)ANTHRACENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BENZO(A)PYRENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BENZO(B)FLUORANTHENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BENZO(G,H,I)PERYLENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BENZO(K)FLUORANTHENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
BIS(2-CHLOROETHOXY)METHANE													5 U				
BIS(2-CHLOROETHYL)ETHER													5 U				
BIS(2-ETHYLHEXYL)PHTHALATE													5 U				
BUTYL BENZYL PHTHALATE													5 U				
CARBAZOLE													5 U				
CHRYSENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
DIBENZO(A,H)ANTHRACENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
DIBENZOFURAN													5 U				
DIETHYL PHTHALATE													5 U				
DIMETHYL PHTHALATE													5 U				
DI-N-BUTYL PHTHALATE													5 U				
DI-N-OCTYL PHTHALATE													5 U				
FLUORANTHENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
FLUORENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
HEXACHLOROBENZENE													5 U				
HEXACHLOROBUTADIENE													5 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
HEXACHLOROCYCLOPENTADIENE													20 U				
HEXACHLOROETHANE													5 U				
INDENO(1,2,3-CD)PYRENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
ISOPHORONE													5 U				
NAPHTHALENE	5 U	5 U	1 U	1 U	1 U				5 U	1 U		10 U	4 U	5 U	1 U		0.22 U
NITROBENZENE													5 U				
N-NITROSO-DI-N-PROPYLAMINE													5 U				
N-NITROSODIPHENYLAMINE													5 U				
PENTACHLOROPHENOL													20 UJ				
PHENANTHRENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
PHENOL													5 U				
PYRENE			1 U	1 U	1 U					1 U			4 U		1 U		0.22 U
TOTAL PAHS	5 U	5 U	1 U	1 U	1 U				5 U	1 U		10 U	4 U	5 U	1 U		0.22 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/L)																	
1,1-BIPHENYL																	
1-METHYLNAPHTHALENE																	
1-METHYLPHENANTHRENE																	
2,3,5-TRIMETHYLNAPHTHALENE																	
2,6-DIMETHYLNAPHTHALENE																	
BENZO(E)PYRENE																	
DIBENZOTHIOPHENE																	
PERYLENE																	
TOTAL METHYLNAPHTHALENES																	
PESTICIDES/PCBS (UG/L)																	
4,4'-DDD																	
4,4'-DDE																	
4,4'-DDT																	
ALDRIN																	
ALPHA-BHC																	
ALPHA-CHLORDANE																	
AROCLOR-1016													0.5 U				
AROCLOR-1221													0.5 U				
AROCLOR-1232													0.5 U				
AROCLOR-1242													0.5 U				
AROCLOR-1248													0.5 U				
AROCLOR-1254													0.5 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
AROCLOR-1260													0.5 U				
BETA-BHC																	
DELTA-BHC																	
DIELDRIN																	
ENDOSULFAN I																	
ENDOSULFAN II																	
ENDOSULFAN SULFATE																	
ENDRIN																	
ENDRIN ALDEHYDE																	
ENDRIN KETONE																	
GAMMA-BHC (LINDANE)																	
GAMMA-CHLORDANE																	
HEPTACHLOR																	
HEPTACHLOR EPOXIDE																	
METHOXYCHLOR																	
TOTAL AROCLOR													0.5 U				
TOXAPHENE																	
METALS (UG/L)																	
ALUMINUM													200 U				
ANTIMONY													5 U				
ARSENIC													5 U				
BARIUM													200 U				
BERYLLIUM													4 U				
CADMIUM													4 U				
CALCIUM													17200				
CHROMIUM													10 U				
COBALT													50 U				
COPPER													25 U				
IRON													100 UJ				
LEAD													3 UJ				
MAGNESIUM													5000 U				
MANGANESE													1470 J				
MERCURY													0.2 U				
NICKEL													40 U				
POTASSIUM													5000 U				
SELENIUM													5 U				
SILVER													10 U				

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10	EU10
LOCATION ID	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-06	B116-MW-07	B116-MW-07	B116-MW-07	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B116-MW-08	B14-MW-01
SAMPLE ID	OGW6A-AA96712-AVG	OGW6A-AA96712-D	OGW6A-AA96712A	OGW6A-AA96712A-AVG	OGW6A-AA96712A-D	OGW6A-AA96712B	OGW6A-AA96712B-AVG	OGW6A-AA96712B-D	OGW7A-AA96716	OGW7A-AA96716A	OGW7A-AA96716B	B116GW08	B116GW08AA	OGW8A-AA96717	OGW8A-AA96717A	OGW8A-AA96717B	B14W-MW01A
SAMPLE CODE	AVG	DUP	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19980203	19990708	19990708	19980203	19980203	99990101	19971031
SODIUM													26000				
THALLIUM													2 U				
VANADIUM													50 U				
ZINC													20 U				
MISCELLANEOUS PARAMETERS (UG/L)																	
CYANIDE																	
FIELD (MG/L)																	
DISSOLVED OXYGEN																	
FIELD (MV)																	
OXIDATION REDUCTION POTENTIAL																	
FIELD (S.U.)																	
PH																	
FIELD (MS/CM)																	
CONDUCTIVITY																	
SPECIFIC CONDUCTANCE																	
FIELD (C)																	
TEMPERATURE																	
FIELD (NTU)																	
TURBIDITY																	
EPH MADEP (UG/L)																	
C10-C22 AROMATICS																	110 U
C11-C22 AROMATICS			200 U	200 U	200 U					200 U			100 U		200 U		
C11-C22 AROMATICS (WEIGHTED 1.0)																	
C19-C36 ALIPHATICS			200 U	200 U	200 U					200 U					200 U		50 U
C19-C36 ALIPHATICS (WEIGHTED 0.005)																	
C9-C18 ALIPHATICS			200 U	200 U	200 U					200 U					200 U		38 U
C9-C18 ALIPHATICS (WEIGHTED 0.05)																	
EXTRACTABLE PETROLEUM HYDROCARBONS																	
TCLP VOLATILES (UG/L)																	
BENZENE																	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
VOLATILES (UG/L)																		
1,1,1-TRICHLOROETHANE				1 U													1 U	
1,1,2,2-TETRACHLOROETHANE				1 U													1 U	
1,1,2-TRICHLOROETHANE				1 U													1 U	
1,1-DICHLOROETHANE				1 U													1 U	
1,1-DICHLOROETHENE				1 U													1 U	
1,2-DIBROMO-3-CHLOROPROPANE																	2 U	
1,2-DIBROMOETHANE																	1 U	
1,2-DICHLOROBENZENE				1 U													1 U	
1,2-DICHLOROETHANE				1 U													1 U	
1,2-DICHLOROPROPANE				1 U													1 U	
1,3-DICHLOROBENZENE				1 U													1 U	
1,4-DICHLOROBENZENE				1 U													1 U	
2-BUTANONE				5 R													5 R	
2-HEXANONE				5 U													5 U	
4-METHYL-2-PENTANONE				5 R													5 U	
ACETONE				5 R													5 UJ	
BENZENE	5 U	5 U	5 U	1 U	5 U	5 U	5 U	3.75	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	5 U
BROMODICHLOROMETHANE				1 U													1 U	
BROMOFORM				1 U													1 U	
BROMOMETHANE				1 U													2 U	
CARBON DISULFIDE				1 U													1 U	
CARBON TETRACHLORIDE				1 U													1 U	
CHLOROBENZENE				1 U													1 U	
CHLORODIBROMOMETHANE				1 U													1 U	
CHLOROETHANE				1 U													2 U	
CHLOROFORM				1 U													1 U	
CHLOROMETHANE				1 U													2 U	
CIS-1,2-DICHLOROETHENE				1 U													1 U	
CIS-1,3-DICHLOROPROPENE				1 U													1 U	
ETHYLBENZENE	5 U	5 U	5 U	1 U	5 U	5 U	22	23	24	22	28	5 U	5 U	5 U	5 U	5 U	1 U	5 U
M+P-XYLENES			20 U	1 U	10 U	10 U	100	105	110					20 U	20 U	20 U	1 U	
METHYL TERT-BUTYL ETHER	15 U	15 U	15 U		5 U	5 U	8	7	6	15 U	15 U	15 U	15 U	15 U	15 U	15 U		15 U
METHYLENE CHLORIDE				1 UJ													2 U	
O-XYLENE	5 U	5 U	10 U	1 U	10 U	10 U	20	20.5	21	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 U	10 U
STYRENE				1 U													1 U	
TETRACHLOROETHENE				1 U													1 U	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
TOLUENE	5 U	5 U	15 U	1 U	15 U	15 U	130	140	150	15 U	15 U	15 U	15 U	15 U	15 U	15 U	1 U	15 U
TOTAL 1,2-DICHLOROETHENE				1 U													1 U	
TOTAL XYLENES	5 U	5 U	20 U	1 U	10 U	10 U	120	126	131	20 U	20 U	20 U	20 U	20 U	20 U	20 U	1 U	20 U
TRANS-1,2-DICHLOROETHENE				1 U													1 U	
TRANS-1,3-DICHLOROPROPENE				1 U													1 U	
TRICHLOROETHENE				1 U													1 U	
VINYL CHLORIDE				1 U													1 U	
VOLATILE PETROLEUM HYDROCARBONS			20 U											20 U	20 U	20 U		
VPH MADEP (UG/L)																		
C5-C8 ALIPHATICS	75 U	75 U	20 U		240 U	240 U	2600	2500	2400	44	41	8.5 U	6.5 U	20 U	20 U	20 U		9.5 U
C5-C8 ALIPHATICS (WEIGHTED 0.5)																		
C9-C10 AROMATICS	20 U	20 U	20 U		70 U	70 U	200	200	200	94	74	10 U	10 U	20 U	20 U	20 U		10 U
C9-C10 AROMATICS (WEIGHTED 1.0)																		
C9-C12 ALIPHATICS	65 U	65 U	20 U		100 U	100 U	100 U	100 U	100 U	9.5	7	0.5 U	0.5 U	20 U	20 U	20 U		0.5 U
C9-C12 ALIPHATICS (WEIGHTED 0.05)																		
SEMIVOLATILES (UG/L)																		
1,2,4-TRICHLOROBENZENE				10 U													5.3 U	
2,2'-OXYBIS(1-CHLOROPROPANE)				10 UJ													5.3 U	
2,4,5-TRICHLOROPHENOL				48 U													5.3 U	
2,4,6-TRICHLOROPHENOL				10 U													5.3 U	
2,4-DICHLOROPHENOL				10 U													5.3 U	
2,4-DIMETHYLPHENOL				10 U													5.3 U	
2,4-DINITROPHENOL				48 UJ													11 U	
2,4-DINITROTOLUENE				10 U													5.3 U	
2,6-DINITROTOLUENE				10 U													5.3 U	
2-CHLORONAPHTHALENE				10 U													5.3 U	
2-CHLOROPHENOL				10 U													5.3 U	
2-METHYLNAPHTHALENE	0.22 U	0.23 U	4.1 U	10 U						35 J	0.8	0.07 U	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
2-METHYLPHENOL				10 U													5.3 U	
2-NITROANILINE				48 U													11 U	
2-NITROPHENOL				10 U													5.3 U	
3&4-METHYLPHENOL																		
3,3'-DICHLOROBENZIDINE				19 U													5.3 U	
3-NITROANILINE				48 U													11 U	
4,6-DINITRO-2-METHYLPHENOL				48 U													11 U	
4-BROMOPHENYL PHENYL ETHER				10 U													5.3 U	
4-CHLORO-3-METHYLPHENOL				10 U													11 U	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
4-CHLOROANILINE				19 U													5.3 U	
4-CHLOROPHENYL PHENYL ETHER				10 U													5.3 U	
4-METHYLPHENOL				10 U													5.3 U	
4-NITROANILINE				48 UJ													11 U	
4-NITROPHENOL				48 U													11 U	
ACENAPHTHENE	0.22 U	0.23 U	4.1 U	10 U						9	1	3	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
ACENAPHTHYLENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.08	0.07 U	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
ANTHRACENE	0.22 U	0.23 U	4.1 U	10 U						2	0.2	0.3	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
BAP EQUIVALENT-HALFND	0.225 U	0.23 U	4.1 U	10 U						0.051	0.08 J	0.08 J	0.02 U	4.1 U	4.05 U	4 U	0.1 U	0.023 J
BAP EQUIVALENT-POS	0.225 U	0.23 U	4.1 U	10 U						0.007	0.041 J	0.003 J	0.02 U	4.1 U	4.05 U	4 U	0.1 U	3E-05 J
BENZO(A)ANTHRACENE	0.22 U	0.23 U	4.1 U	10 U						0.07	0.08	0.03 J	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
BENZO(A)PYRENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.03 J	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
BENZO(B)FLUORANTHENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.03 J	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
BENZO(G,H,I)PERYLENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.07 U	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
BENZO(K)FLUORANTHENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.07 U	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
BIS(2-CHLOROETHOXY)METHANE				10 U													5.3 U	
BIS(2-CHLOROETHYL)ETHER				10 U													5.3 U	
BIS(2-ETHYLHEXYL)PHTHALATE				1 J													5.3 U	
BUTYL BENZYL PHTHALATE				10 U													5.3 U	
CARBAZOLE				10 U													5.3 U	
CHRYSENE	0.22 U	0.23 U	4.1 U	10 U						0.08	0.1	0.04 J	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.03 J
DIBENZO(A,H)ANTHRACENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.07 U	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
DIBENZOFURAN				10 U													5.3 U	
DIETHYL PHTHALATE				10 UJ													5.3 U	
DIMETHYL PHTHALATE				10 U													5.3 U	
DI-N-BUTYL PHTHALATE				10 U													5.3 U	
DI-N-OCTYL PHTHALATE				10 U													5.3 U	
FLUORANTHENE	0.22 U	0.23 U	4.1 U	10 U						1	0.4	3	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
FLUORENE	0.22 U	0.23 U	4.1 U	10 U						4	0.6	0.6	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
HEXACHLOROBENZENE				10 U													5.3 U	
HEXACHLOROBUTADIENE				10 U													5.3 U	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
HEXACHLOROCYCLOPENTADIENE				10 U													5.3 U	
HEXACHLOROETHANE				10 U													5.3 U	
INDENO(1,2,3-CD)PYRENE	0.22 U	0.23 U	4.1 U	10 U						0.04 U	0.07 U	0.07 U	0.02 U	4.1 U	4.1 U	4 U	0.1 U	0.02 U
ISOPHORONE				10 U													5.3 U	
NAPHTHALENE	0.22 U	0.23 U	4.1 U	10 U						32 J	2	0.07 U	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
NITROBENZENE				10 U													5.3 U	
N-NITROSO-DI-N-PROPYLAMINE				10 U													5.3 U	
N-NITROSODIPHENYLAMINE				10 U													5.3 U	
PENTACHLOROPHENOL				48 U													11 U	
PHENANTHRENE	0.22 U	0.23 U	4.1 U	10 U						6	0.3	0.07 U	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.02 U
PHENOL				10 U													5.3 U	
PYRENE	0.22 U	0.23 U	4.1 U	10 U						0.9	0.5	2	0.02 U	4.1 U	4.1 U	4 U	5.3 U	0.1
TOTAL PAHS	0.225 U	0.23 U	4.1 U	10 U						90 J	6.12 J	8.97 J	0.02 U	4.1 U	4.05 U	4 U	3.16 U	0.13 J
POLYCYCLIC AROMATIC HYDROCARBONS (UG/L)																		
1,1-BIPHENYL										0.2	0.07 U	0.07 U	0.02 U					0.02 U
1-METHYLNAPHTHALENE										15	0.9	0.07 U	0.02 U					0.02 U
1-METHYLPHENANTHRENE										0.3	0.2	0.07 U	0.02 U					0.02 U
2,3,5-TRIMETHYLNAPHTHALENE										1	0.5	0.06 J	0.02 U					0.02 U
2,6-DIMETHYLNAPHTHALENE										6	0.3	0.05 J	0.02 U					0.02 U
BENZO(E)PYRENE										0.04 U	0.04 J	0.07 U	0.02 U					0.02 U
DIBENZOTHIOPHENE										0.7	0.2	0.4	0.02 U					0.02 U
PERYLENE										0.04 U	0.07 U	0.07 U	0.02 U					0.02 U
TOTAL METHYLNAPHTHALENES																		
PESTICIDES/PCBS (UG/L)																		
4,4'-DDD				0.09 U														
4,4'-DDE				0.09 U														
4,4'-DDT				0.09 U														
ALDRIN				0.04 U														
ALPHA-BHC				0.04 U														
ALPHA-CHLORDANE				0.04 U														
AROCLOR-1016				0.96 U														
AROCLOR-1221				1.9 U														
AROCLOR-1232				0.96 U														
AROCLOR-1242				0.96 U														
AROCLOR-1248				0.96 U														
AROCLOR-1254				0.96 U														

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
AROCLOR-1260				0.96 U														
BETA-BHC				0.04 U														
DELTA-BHC				0.04 U														
DIELDRIN				0.09 U														
ENDOSULFAN I				0.04 U														
ENDOSULFAN II				0.09 U														
ENDOSULFAN SULFATE				0.09 U														
ENDRIN				0.09 U														
ENDRIN ALDEHYDE				0.09 U														
ENDRIN KETONE				0.09 U														
GAMMA-BHC (LINDANE)				0.04 U														
GAMMA-CHLORDANE				0.04 U														
HEPTACHLOR				0.04 U														
HEPTACHLOR EPOXIDE				0.04 U														
METHOXYCHLOR				0.48 U														
TOTAL AROCLOR				1.09 U														
TOXAPHENE				4.8 U														
METALS (UG/L)																		
ALUMINUM				550													70 UJ	
ANTIMONY				50 U													8.4 J	
ARSENIC				5 U													5 U	
BARIUM				10													40 U	
BERYLLIUM				3 U													5 U	
CADMIUM				5 U													5 U	
CALCIUM				13000													17000 J	
CHROMIUM				5 U													1.1 J	
COBALT				10 U													50 U	
COPPER				10 U													25 U	
IRON				890													390 J	
LEAD				5 UJ													5 U	
MAGNESIUM				2900													2100 J	
MANGANESE				60													46	
MERCURY				0.2 U													0.047 U	
NICKEL				5 U													8.5 J	
POTASSIUM				1000 U													4400 J	
SELENIUM				10 U													5 U	
SILVER				5 U													7 U	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU10	EU10	EU10	EU11	EU19	EU20	EU21	EU21	EU21	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU26	EU27
LOCATION ID	B14-MW-01	B14-MW-01	B14-MW-01	MW11-201	AVG-MW-4	AVG-MW-1	AVG-MW-2	AVG-MW-2	AVG-MW-2	B8-MW-01	B8-MW-02	B8-MW-03	B8-MW-04	B8-MW-11	B8-MW-11	B8-MW-11	MW06-304	B8-MW-05
SAMPLE ID	B14W-MW01A-AVG	B14W-MW01A-D	B14GW01AA	MW11-201-NWG-053001	AGGW04AA	AGGW01AA	AGGW02AA	AGGW02AA-AVG	AGGW02AA-D	B8-8GW01A	B8-8GW02A	B8-8GW03A	B8-8GW04A	B8GW11AA	B8GW11AA-AVG	B8GW11AA-D	MW06-304-NGW-112002	B8-8GW05A
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE	19971031	19971031	19990706	20010530	20000215	20000215	20000215	20000215	20000215	19960809	19960809	19960809	19960809	19990706	19990706	19990706	20021120	19960809
SODIUM				10000													67000 J	
THALLIUM				10 U													5 U	
VANADIUM				10 U													1.5 U	
ZINC				20 U													32 U	
MISCELLANEOUS PARAMETERS (UG/L)																		
CYANIDE				5 U													10 U	
FIELD (MG/L)																		
DISSOLVED OXYGEN																		
FIELD (MV)																		
OXIDATION REDUCTION POTENTIAL																		
FIELD (S.U.)																		
PH																		
FIELD (MS/CM)																		
CONDUCTIVITY																		
SPECIFIC CONDUCTANCE																		
FIELD (C)																		
TEMPERATURE																		
FIELD (NTU)																		
TURBIDITY																		
EPH MADEP (UG/L)																		
C10-C22 AROMATICS	110 U	94 U																
C11-C22 AROMATICS			100 U		93 U	88 U	93 U	93 U	93 U	180	88 U	87 U	88 U	100 U	100 U	100 U		88 U
C11-C22 AROMATICS (WEIGHTED 1.0)																		
C19-C36 ALIPHATICS	50 U	44 U			44 U	42 U	44 U	49	76	0.2 U	0.2 U	0.2 U	0.2 U					0.2 U
C19-C36 ALIPHATICS (WEIGHTED 0.005)																		
C9-C18 ALIPHATICS	38 U	33 U			33 U	31 U	33 U	33 U	33 U	1.6 U	1.6 U	1.6 U	1.6 U					1.6 U
C9-C18 ALIPHATICS (WEIGHTED 0.05)																		
EXTRACTABLE PETROLEUM HYDROCARBONS																		
TCLP VOLATILES (UG/L)																		
BENZENE																		

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,1,2,2-TETRACHLOROETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,1,2-TRICHLOROETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,1-DICHLOROETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,1-DICHLOROETHENE							1 U			1 UJ		0.71 J	0.605 J	1 U	1 U	1 UJ	1 U
1,2-DIBROMO-3-CHLOROPROPANE										0.02 UJ		0.02 UJ	0.02 UJ	0.02 UJ	2 U		2 U
1,2-DIBROMOETHANE										0.02 UJ		0.02 UJ	0.02 UJ	0.02 UJ	1 U		1 U
1,2-DICHLOROBENZENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,2-DICHLOROETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,2-DICHLOROPROPANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,3-DICHLOROBENZENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
1,4-DICHLOROBENZENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
2-BUTANONE							5 R			5 R		5 R	5 R	5 R	5 R	5 R	5 R
2-HEXANONE							5 U			5 UJ		5 U	5 U	5 U	5 U	5 UJ	5 U
4-METHYL-2-PENTANONE							5 U			5 UJ		5 U	5 U	5 U	5 U	5 UJ	5 U
ACETONE							10 R			10 R		10 R	10 R	10 R	5 U	10 R	5 U
BENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U	1 U	1 U	1 U	1 U	1 UJ	1 U
BROMODICHLOROMETHANE							1 U			1 UJ		1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U
BROMOFORM							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
BROMOMETHANE							2 UJ			2 UJ		2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U
CARBON DISULFIDE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
CARBON TETRACHLORIDE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
CHLOROBENZENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
CHLORODIBROMOMETHANE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
CHLOROETHANE							2 UJ			2 UJ		2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U
CHLOROFORM							0.23 J			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
CHLOROMETHANE							2 UJ			2 UJ		2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U
CIS-1,2-DICHLOROETHENE															1 U		1 U
CIS-1,3-DICHLOROPROPENE							1 U			1 UJ		1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U
ETHYLBENZENE	5 U	5 U	5 U	5 U	5 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U	10	9.05	8.1	1 U	1 UJ	1 U
M+P-XYLENES				10 U	10 UJ	20 U		10 U	10 U		10 U				1 U		1 U
METHYL TERT-BUTYL ETHER	15 U	15 U	15 U	15 U	15 UJ	15 U		5 U	5 U	7	9	15 U	15 U	15 U			
METHYLENE CHLORIDE							2 U			2 UJ		2 U	2 U	2 U	2 U	2 UJ	2 U
O-XYLENE	10 U	10 U	10 U	10 U	10 UJ	10 U	1 U	10 U	10 U	0.3 J	10 U	2.3	2.35	2.4	1 U	1 UJ	1 U
STYRENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
TETRACHLOROETHENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
TOLUENE	15 U	15 U	15 U	15 U	15 UJ	15 U	1 U	15 U	15 U	12.8	15 U	1 U	1 U	1 U	1 U	1 UJ	1 U
TOTAL 1,2-DICHLOROETHENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
TOTAL XYLENES	20 U	20 U	20 U	10 U	10 UJ	20 U	1 U	10 U	10 U	1.6 J	10 U	20	18.5	17	1 U	1 UJ	1 U
TRANS-1,2-DICHLOROETHENE															1 U		1 U
TRANS-1,3-DICHLOROPROPENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
TRICHLOROETHENE							1 U			1 UJ		1 U	1 U	1 U	1 U	1 UJ	1 U
VINYL CHLORIDE							2 U			2 UJ		2 U	2 U	2 U	1 U	2 UJ	1 U
VOLATILE PETROLEUM HYDROCARBONS						20 U						1200	1060	920			
VPH MADEP (UG/L)																	
C5-C8 ALIPHATICS	9.5 U	7 U	5 U	240 U	240 UJ	20 U		240 U	240 U	411	2700	1100 J	975 J	850 J			
C5-C8 ALIPHATICS (WEIGHTED 0.5)																	
C9-C10 AROMATICS	10 U	10 U	10 U	70 U	70 UJ	20 U		70 U	70 U	100 U	70 U	32	29	26			
C9-C10 AROMATICS (WEIGHTED 1.0)																	
C9-C12 ALIPHATICS	0.5 U	0.5 U	0.9 J	100 UJ	100 UJ	20 U		100 U	100 U	100 U	100 U	51	47.5	44			
C9-C12 ALIPHATICS (WEIGHTED 0.05)																	
SEMIVOLATILES (UG/L)																	
1,2,4-TRICHLOROBENZENE							3 UJ			3 U		3 U	3 U	3 U	5.2 U	3 UJ	5.1 U
2,2'-OXYBIS(1-CHLOROPROPANE)							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
2,4,5-TRICHLOROPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2,4,6-TRICHLOROPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2,4-DICHLOROPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2,4-DIMETHYLPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2,4-DINITROPHENOL							6 U			6 UJ		6 UJ	6 UJ	6 UJ	10 U	6 U	10 U
2,4-DINITROTOLUENE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
2,6-DINITROTOLUENE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
2-CHLORONAPHTHALENE							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2-CHLOROPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2-METHYLNAPHTHALENE	0.02 U	0.02 U	0.02	5.9 U		4 U	3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
2-METHYLPHENOL							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
2-NITROANILINE							5 U			5 UJ		5 UJ	5 UJ	5 UJ	10 U	5 U	10 U
2-NITROPHENOL							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
3&4-METHYLPHENOL																	
3,3'-DICHLOROBENZIDINE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
3-NITROANILINE							4 U			4 UJ		4 UJ	4 UJ	4 UJ	10 U	4 U	10 U
4,6-DINITRO-2-METHYLPHENOL							6 U			6 UJ		6 UJ	6 UJ	6 UJ	10 U	6 U	10 U
4-BROMOPHENYL PHENYL ETHER							5 U			5 U		5 U	5 U	5 U	5.2 U	5 U	5.1 U
4-CHLORO-3-METHYLPHENOL							4 U			4 U		4 U	4 U	4 U	10 U	4 U	10 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
4-CHLOROANILINE							5 U			5 U		5 U	5 U	5 U	5.2 U	5 U	5.1 U
4-CHLOROPHENYL PHENYL ETHER							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
4-METHYLPHENOL							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
4-NITROANILINE							4 U			4 UJ		4 UJ	4 UJ	4 UJ	10 U	4 U	10 U
4-NITROPHENOL							5 U			5 UJ		5 UJ	5 UJ	5 UJ	10 U	5 U	10 U
ACENAPHTHENE	0.02 U	0.02 U	0.04	5.9 U		4 U	3 UJ			3 U		3 U	3 U	3 U	5.2 U	3 UJ	5.1 U
ACENAPHTHYLENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
ANTHRACENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
BAP EQUIVALENT-HALFND	0.017 J	0.02 U	0.02 U	5.9 U		4 U	0.02 UJ			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 UJ	0.1 U
BAP EQUIVALENT-POS	0.005 J	0.02 U	0.02 U	5.9 U		4 U	0.02 UJ			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 UJ	0.1 U
BENZO(A)ANTHRACENE	0.02 U	0.02 UJ	0.02 U	5.9 U		4 U	0.01 U			0.01 U		0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.1 U
BENZO(A)PYRENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.02 UJ			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 UJ	0.1 U
BENZO(B)FLUORANTHENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.02 U			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.1 U
BENZO(G,H,I)PERYLENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.02 U			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.1 U
BENZO(K)FLUORANTHENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.008 U			0.008 U		0.008 U	0.008 U	0.008 U	0.1 U	0.008 U	0.1 U
BIS(2-CHLOROETHOXY)METHANE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
BIS(2-CHLOROETHYL)ETHER							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
BIS(2-ETHYLHEXYL)PHTHALATE							7 U			7 U		7 U	7 U	7 U	5.2 U	7 U	5.1 U
BUTYL BENZYL PHTHALATE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
CARBAZOLE							5 U			5 U		5 U	5 U	5 U	5.2 U	5 U	5.1 U
CHRYSENE	0.02	0.02 UJ	0.02 U	5.9 U		4 U	3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
DIBENZO(A,H)ANTHRACENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.02 U			0.02 U		0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.1 U
DIBENZOFURAN							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
DIETHYL PHTHALATE							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
DIMETHYL PHTHALATE							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
DI-N-BUTYL PHTHALATE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
DI-N-OCTYL PHTHALATE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
FLUORANTHENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	5 U			5 U		5 U	5 U	5 U	5.2 U	5 U	5.1 U
FLUORENE	0.02 U	0.02 U	0.03	5.9 U		4 U	4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
HEXACHLOROBENZENE							6 U			6 U		6 U	6 U	6 U	5.2 U	6 U	5.1 U
HEXACHLOROBUTADIENE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
HEXACHLOROCYCLOPENTADIENE							2 U			2 R		2 R	2 R	2 R	5.2 U	2 U	5.1 U
HEXACHLOROETHANE							3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
INDENO(1,2,3-CD)PYRENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	0.04 U			0.04 U		0.04 U	0.04 U	0.04 U	0.1 U	0.04 U	0.1 U
ISOPHORONE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
NAPHTHALENE	0.02 U	0.02 U	0.1	5.9 U	10 UJ	4 U	3 U			3 U		3 U	3 U	3 U	5.2 U	3 U	5.1 U
NITROBENZENE															5.2 U		5.1 U
N-NITROSO-DI-N-PROPYLAMINE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
N-NITROSODIPHENYLAMINE							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
PENTACHLOROPHENOL															10 UJ		10 UJ
PHENANTHRENE	0.02 U	0.02 U	0.02 U	5.9 U		4 U	5 U			5 U		5 U	5 U	5 U	5.2 U	5 U	5.1 U
PHENOL							4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
PYRENE	0.1	0.1 J	0.04	5.9 U		4 U	4 U			4 U		4 U	4 U	4 U	5.2 U	4 U	5.1 U
TOTAL PAHS	0.115 J	0.1 J	0.23	5.9 U	10 UJ	4 U	2.24 UJ			2.24 U		2.24 U	2.24 U	2.24 U	3.1 U	2.24 UJ	3.04 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/L)																	
1,1-BIPHENYL	0.02 U	0.02 U	0.02 U														
1-METHYLNAPHTHALENE	0.02 U	0.02 U	0.02 U														
1-METHYLPHENANTHRENE	0.02 U	0.02 U	0.02 U														
2,3,5-TRIMETHYLNAPHTHALENE	0.02 U	0.02 U	0.01 J														
2,6-DIMETHYLNAPHTHALENE	0.02 U	0.02 U	0.02 U														
BENZO(E)PYRENE	0.02 U	0.02 U	0.02 U														
DIBENZOTHIOPHENE	0.02 U	0.02 U	0.2 U														
PERYLENE	0.02 U	0.02 U	0.02 U														
TOTAL METHYLNAPHTHALENES																	
PESTICIDES/PCBS (UG/L)																	
4,4'-DDD							0.01 U									0.01 U	
4,4'-DDE							0.02 U									0.02 U	
4,4'-DDT							0.01 U									0.01 U	
ALDRIN							0.04 U									0.04 U	
ALPHA-BHC							0.008 U									0.008 U	
ALPHA-CHLORDANE							0.01 U									0.01 U	
AROCLOR-1016							0.62 U									0.62 U	
AROCLOR-1221							0.61 U									0.61 U	
AROCLOR-1232							0.76 U									0.76 U	
AROCLOR-1242							0.54 U									0.54 U	
AROCLOR-1248							0.54 U									0.54 U	
AROCLOR-1254							0.68 U									0.68 U	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
AROCLOR-1260							0.14 U									0.14 U	
BETA-BHC							0.008 U									0.008 U	
DELTA-BHC							0.006 U									0.006 U	
DIELDRIN							0.01 U									0.01 U	
ENDOSULFAN I							0.005 U									0.005 U	
ENDOSULFAN II							0.02 U									0.02 U	
ENDOSULFAN SULFATE																	
ENDRIN							0.01 U									0.01 U	
ENDRIN ALDEHYDE							0.02 U									0.02 U	
ENDRIN KETONE																	
GAMMA-BHC (LINDANE)							0.004 U									0.004 U	
GAMMA-CHLORDANE							0.01 U									0.01 U	
HEPTACHLOR							0.03 U									0.03 U	
HEPTACHLOR EPOXIDE							0.006 U									0.006 U	
METHOXYCHLOR																	
TOTAL AROCLOR							0.556 U									0.556 U	
TOXAPHENE							2.4 U									2.4 U	
METALS (UG/L)																	
ALUMINUM							272 J			56 U		1490	1160	837	18 UJ	19400 J	210 UJ
ANTIMONY							1 U			1 U		1.3 U	1.15 U	1 U	10 U	1 U	10 U
ARSENIC							2 U			2 U		2 U	2 U	2 U	5 U	2.9 J	5 U
BARIUM							8 U			14.4 J		23.3 J	21.7 J	20.1 J	57 U	660	32 U
BERYLLIUM							0.2 U			0.2 UJ		0.2 UJ	0.2 UJ	0.2 UJ	5 U	6.9	5 U
CADMIUM							0.6 U			0.6 U		0.6 U	0.6 U	0.6 U	5 U	0.6 U	5 U
CALCIUM							1190			2890 J		20000 J	20400 J	20900 J	12000 J	81400	9000 J
CHROMIUM							4 U			4 U		4 U	4 U	4 U	10 U	13	10 U
COBALT							7 U			7 UJ		7 UJ	7 UJ	7 UJ	50 U	7 U	50 U
COPPER							5 U			5 U		5 U	5 U	5 U	25 U	63.2	25 U
IRON							332 U			52 UJ		1630	1310	986	100 UJ	1280 J	490 J
LEAD							1 U			2.8 U		5.9 U	5.8 U	5.7 U	5 U	18.1	5 U
MAGNESIUM							173 J			259 J		1210 J	1140 J	1080 J	2900	2680	710 J
MANGANESE							8.8 J			223		70 J	66 J	62.1 J	180	130	6.4 U
MERCURY							0.1 U			0.1 UJ		0.1 U	0.12 U	0.14 U	0.037 U	0.1 U	0.011 U
NICKEL							5 U			5 UJ		5 UJ	5 UJ	5 UJ	40 U	5 U	40 U
POTASSIUM							327 J			624 J		1240 J	1180 J	1120 J	3400 J	5940	4200 J
SELENIUM							2 U			2 U		2.6 U	3.1 U	3.6 U	5 U	2 U	5 U
SILVER							1.1 J			1 U		1 U	1 U	1 U	7 U	1 U	7 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU27	EU27	EU27	EU27	EU27	EU27	EU28	EU32	EU33	EU33	EU34	EU34	EU34	EU34	EU36	EU37	EU37
LOCATION ID	B8-MW-05	B8-MW-05	B8-MW-06	B8-MW-07	B8-MW-07	B8-MW-10	MW06-003	AVG-MW-5	AVG-MW-6	MW09-010	AVG-MW-3	MW09-012	MW09-012	MW09-012	MW06-301	MW06-013	MW06-302
SAMPLE ID	B8-8GW05A-AVG	B8-8GW05A-D	B8-8GW06A	B8GW07A-40676-5	B8SB07AB-40611-3	B8GW10AA	MW06-003-NWG-012099	AGGW05AA	AGGW06AA	MW09-010-NWG-012799	AGGW03AA	MW09-012-NWG-012599	MW09-012-NWG-012599-AVG	MW09-012-NWG-012599-D	MW06-301-NGW-111802	MW06-013-NWG-012099	MW06-302-NGW-111502
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19960809	19960809	19960812	19980504	19980424	19990701	19990120	20000215	20000215	19990127	20000215	19990125	19990125	19990125	20021118	19990120	20021115
SODIUM							8460			2560		4450	4380	4300	42000 J	44300	25000 J
THALLIUM							1 U			1 UJ		1 UJ	1 UJ	1 UJ	5 U	1 U	5 U
VANADIUM							3 U			3 U		3.7 J	2.6 J	3 U	0.46 U	175	7.7 J
ZINC							12 U			12 U		12 U	12 U	12 U	2.9 U	87.5	11 U
MISCELLANEOUS PARAMETERS (UG/L)																	
CYANIDE										10 UJ					10 U	10 UJ	10 U
FIELD (MG/L)																	
DISSOLVED OXYGEN							4.3					4.3	4.3			5.3	
FIELD (MV)																	
OXIDATION REDUCTION POTENTIAL							218.1					166.6	166.6			245.4	
FIELD (S.U.)																	
PH							5.71					6.29	6.29			6.12	
FIELD (MS/CM)																	
CONDUCTIVITY																	
SPECIFIC CONDUCTANCE							0.09					0.142	0.142			0.502	
FIELD (C)																	
TEMPERATURE							7.5					8.45	8.45			12.94	
FIELD (NTU)																	
TURBIDITY							28.5					14.3	14.3				
EPH MADEP (UG/L)																	
C10-C22 AROMATICS																	
C11-C22 AROMATICS	88 U	88 U	88 U	100 U		100 U	180 U	85 U	96 U	170 U	96 U	160 U	160 U	160 U		170 U	
C11-C22 AROMATICS (WEIGHTED 1.0)																	
C19-C36 ALIPHATICS	0.2 U	0.2 U	0.2 U	47 U			82 UJ	40 U	45 U	80 UJ	45 U	60 U	60.5 U	61 U		82 UJ	
C19-C36 ALIPHATICS (WEIGHTED 0.005)																	
C9-C18 ALIPHATICS	1.6 U	1.6 U	1.6 U	35 U			62 UJ	30 U	34 U	60 UJ	34 U	60 U	60.5 U	61 U		61 UJ	
C9-C18 ALIPHATICS (WEIGHTED 0.05)																	
EXTRACTABLE PETROLEUM HYDROCARBONS												280 U	280 U	280 U			
TCLP VOLATILES (UG/L)																	
BENZENE																	

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
VOLATILES (UG/L)									
1,1,1-TRICHLOROETHANE	0.31 J	0.12 J			1 U		1 UJ	1 U	1 UJ
1,1,2,2-TETRACHLOROETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,1,2-TRICHLOROETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,1-DICHLOROETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,1-DICHLOROETHENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,2-DIBROMO-3-CHLOROPROPANE	2 U	2 U			2 U				
1,2-DIBROMOETHANE	1 U	1 U			1 U				
1,2-DICHLOROBENZENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,2-DICHLOROETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,2-DICHLOROPROPANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,3-DICHLOROBENZENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
1,4-DICHLOROBENZENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
2-BUTANONE	5 R	5 R			5 R		5 R	5 R	5 R
2-HEXANONE	5 U	5 U			5 U		5 UJ	5 U	5 UJ
4-METHYL-2-PENTANONE	5 U	5 U			5 U		5 UJ	5 R	5 UJ
ACETONE	5 U	5 U			5 U		10 R	10 R	10 R
BENZENE	1 U	1 U	5 U	5 U	1 U	5 U	1 UJ	1 U	1 UJ
BROMODICHLOROMETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
BROMOFORM	1 U	1 U			1 U		1 UJ	1 U	1 UJ
BROMOMETHANE	2 U	2 U			2 U		2 UJ	2 U	2 UJ
CARBON DISULFIDE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
CARBON TETRACHLORIDE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
CHLOROBENZENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
CHLORODIBROMOMETHANE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
CHLOROETHANE	2 U	2 U			2 U		2 UJ	2 U	2 UJ
CHLOROFORM	1 U	1 U			1 U		1 UJ	1 U	1 UJ
CHLOROMETHANE	2 U	2 U			2 U		2 UJ	2 U	2 UJ
CIS-1,2-DICHLOROETHENE	1 U	1 U			1 U				
CIS-1,3-DICHLOROPROPENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
ETHYLBENZENE	1 U	1 U	5 U	5 U	1 U	5 U	1 UJ	1 U	1 UJ
M+P-XYLENES	1 U	1 U	10 U	10 U	1 U	10 U			
METHYL TERT-BUTYL ETHER			9 J	9 J		15 U			
METHYLENE CHLORIDE	2 U	2 U			2 U		2 UJ	2 U	2 UJ
O-XYLENE	1 U	1 U	10 U	10 U	1 U	10 U	1 UJ	1 U	1 UJ
STYRENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
TETRACHLOROETHENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
TOLUENE	1 U	1 U	15 U	15 U	1 U	15 U	1 UJ	1 U	1 UJ
TOTAL 1,2-DICHLOROETHENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
TOTAL XYLENES	1 U	1 U	10 U	10 U	1 U	10 U	1 UJ	1 U	1 UJ
TRANS-1,2-DICHLOROETHENE	1 U	1 U			1 U				
TRANS-1,3-DICHLOROPROPENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
TRICHLOROETHENE	1 U	1 U			1 U		1 UJ	1 U	1 UJ
VINYL CHLORIDE	1 U	1 U			1 U		2 UJ	2 U	2 UJ
VOLATILE PETROLEUM HYDROCARBONS									
VPH MADEP (UG/L)									
C5-C8 ALIPHATICS			240 U	240 U		240 U			
C5-C8 ALIPHATICS (WEIGHTED 0.5)									
C9-C10 AROMATICS			70 U	70 U		70 U			
C9-C10 AROMATICS (WEIGHTED 1.0)									
C9-C12 ALIPHATICS			100 UJ	100 UJ		100 UJ			
C9-C12 ALIPHATICS (WEIGHTED 0.05)									
SEMIVOLATILES (UG/L)									
1,2,4-TRICHLOROBENZENE	5.1 U				5.1 U		3 UJ	3 U	3 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	5.1 U				5.1 U		4 U	4 U	4 U
2,4,5-TRICHLOROPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
2,4,6-TRICHLOROPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
2,4-DICHLOROPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
2,4-DIMETHYLPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
2,4-DINITROPHENOL	10 U				10 U		6 U	6 UJ	6 U
2,4-DINITROTOLUENE	5.1 U				5.1 U		4 U	4 U	4 U
2,6-DINITROTOLUENE	5.1 U				5.1 U		4 U	4 U	4 U
2-CHLORONAPHTHALENE	5.1 U				5.1 U		3 U	3 U	3 U
2-CHLOROPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
2-METHYLNAPHTHALENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	3 U	3 U	3 U
2-METHYLPHENOL	5.1 U				5.1 U		4 U	4 U	4 U
2-NITROANILINE	10 U				10 U		5 U	5 UJ	5 U
2-NITROPHENOL	5.1 U				5.1 U		3 U	3 U	3 U
3&4-METHYLPHENOL									
3,3'-DICHLOROBENZIDINE	5.1 U				5.1 U		4 U	4 U	4 U
3-NITROANILINE	10 U				10 U		4 U	4 UJ	4 U
4,6-DINITRO-2-METHYLPHENOL	10 U				10 U		6 U	6 UJ	6 U
4-BROMOPHENYL PHENYL ETHER	5.1 U				5.1 U		5 U	5 U	5 U
4-CHLORO-3-METHYLPHENOL	10 U				10 U		4 U	4 U	4 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
4-CHLOROANILINE	5.1 U				5.1 U		5 U	5 U	5 U
4-CHLOROPHENYL PHENYL ETHER	5.1 U				5.1 U		4 U	4 U	4 U
4-METHYLPHENOL	5.1 U				5.1 U		4 U	4 U	4 U
4-NITROANILINE	10 U				10 U		4 U	4 UJ	4 U
4-NITROPHENOL	10 U				10 U		5 U	5 UJ	5 U
ACENAPHTHENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	3 UJ	3 U	3 UJ
ACENAPHTHYLENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	4 U	4 U	4 U
ANTHRACENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	4 U	4 U	4 U
BAP EQUIVALENT-HALFND	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
BAP EQUIVALENT-POS	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
BENZO(A)ANTHRACENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.01 U	0.01 U	0.01 U
BENZO(A)PYRENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
BENZO(B)FLUORANTHENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
BENZO(G,H,I)PERYLENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
BENZO(K)FLUORANTHENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.008 U	0.008 U	0.008 U
BIS(2-CHLOROETHOXY)METHANE	5.1 U				5.1 U		4 U	4 U	4 U
BIS(2-CHLOROETHYL)ETHER	5.1 U				5.1 U		4 U	4 U	4 U
BIS(2-ETHYLHEXYL)PHTHALATE	5.1 U				5.1 U		7 U	2 J	7 U
BUTYL BENZYL PHTHALATE	5.1 U				5.1 U		4 U	4 U	4 U
CARBAZOLE	5.1 U				5.1 U		5 U	5 U	5 U
CHRYSENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	3 U	3 U	3 U
DIBENZO(A,H)ANTHRACENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.02 U	0.02 U	0.02 U
DIBENZOFURAN	5.1 U				5.1 U		4 U	4 U	4 U
DIETHYL PHTHALATE	5.1 U				5.1 U		3 U	3 U	3 U
DIMETHYL PHTHALATE	5.1 U				5.1 U		3 U	3 U	3 U
DI-N-BUTYL PHTHALATE	5.1 U				5.1 U		4 U	4 U	4 U
DI-N-OCTYL PHTHALATE	5.1 U				5.1 U		4 U	4 U	4 U
FLUORANTHENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	5 U	5 U	5 U
FLUORENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	4 U	4 U	4 U
HEXACHLOROBENZENE	5.1 U				5.1 U		6 U	6 U	6 U
HEXACHLOROBUTADIENE	5.1 U				5.1 U		4 U	4 U	4 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
HEXACHLOROCYCLOPENTADIENE	5.1 U				5.1 U		2 U	2 R	2 U
HEXACHLOROETHANE	5.1 U				5.1 U		3 U	3 U	3 U
INDENO(1,2,3-CD)PYRENE	0.1 U		5.9 U	6.1 U	0.1 U	5.3 U	0.04 U	0.04 U	0.04 U
ISOPHORONE	5.1 U				5.1 U		4 U	4 U	4 U
NAPHTHALENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	3 U	3 U	3 U
NITROBENZENE	5.1 U				5.1 U				
N-NITROSO-DI-N-PROPYLAMINE	5.1 U				5.1 U		4 U	4 U	4 U
N-NITROSODIPHENYLAMINE	5.1 U				5.1 U		4 U	4 U	4 U
PENTACHLOROPHENOL	10 UJ				10 UJ				
PHENANTHRENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	5 U	5 U	5 U
PHENOL	5.1 U				5.1 U		4 U	4 U	4 U
PYRENE	5.1 U		5.9 U	6.1 U	5.1 U	5.3 U	4 U	4 U	4 U
TOTAL PAHS	3.04 U		5.9 U	6.1 U	3.04 U	5.3 U	2.24 UJ	2.24 U	2.24 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/L)									
1,1-BIPHENYL									
1-METHYLNAPHTHALENE									
1-METHYLPHENANTHRENE									
2,3,5-TRIMETHYLNAPHTHALENE									
2,6-DIMETHYLNAPHTHALENE									
BENZO(E)PYRENE									
DIBENZOTHIOPHENE									
PERYLENE									
TOTAL METHYLNAPHTHALENES									
PESTICIDES/PCBS (UG/L)									
4,4'-DDD							0.01 U	0.01 U	0.01 U
4,4'-DDE							0.02 U	0.02 U	0.02 U
4,4'-DDT							0.01 U	0.01 U	0.01 U
ALDRIN							0.04 U	0.04 U	0.04 U
ALPHA-BHC							0.008 U	0.008 U	0.008 U
ALPHA-CHLORDANE							0.01 U	0.01 U	0.01 U
AROCLOR-1016							0.62 U	0.62 U	0.62 U
AROCLOR-1221							0.61 U	0.61 U	0.61 U
AROCLOR-1232							0.76 U	0.76 U	0.76 U
AROCLOR-1242							0.54 U	0.54 U	0.54 U
AROCLOR-1248							0.54 U	0.54 U	0.54 U
AROCLOR-1254							0.68 U	0.68 U	0.68 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
AROCLOR-1260							0.14 U	0.14 U	0.14 U
BETA-BHC							0.008 U	0.008 U	0.008 U
DELTA-BHC							0.006 U	0.006 U	0.006 U
DIELDRIN							0.01 U	0.01 U	0.01 U
ENDOSULFAN I							0.005 U	0.005 U	0.005 U
ENDOSULFAN II							0.02 U	0.02 U	0.02 U
ENDOSULFAN SULFATE									
ENDRIN							0.01 U	0.01 U	0.01 U
ENDRIN ALDEHYDE							0.02 U	0.02 U	0.02 U
ENDRIN KETONE									
GAMMA-BHC (LINDANE)							0.004 U	0.004 U	0.004 U
GAMMA-CHLORDANE							0.01 U	0.01 U	0.01 U
HEPTACHLOR							0.03 U	0.03 U	0.03 U
HEPTACHLOR EPOXIDE							0.006 U	0.006 U	0.006 U
METHOXYCHLOR									
TOTAL AROCLOR							0.556 U	0.556 U	0.556 U
TOXAPHENE							2.4 U	2.4 U	2.4 U
METALS (UG/L)									
ALUMINUM	210 UJ				140 UJ		73.4 J	65 U	80.6 J
ANTIMONY	10 U				10 U		1 U	1.1 U	1 U
ARSENIC	5 U				5 U		4.1 J	2 U	2 U
BARIUM	32 U				37 U		18.2 J	6 U	10.9 J
BERYLLIUM	5 U				5 U		0.2 U	0.6 U	0.2 U
CADMIUM	5 U				5 U		0.6 U	0.6 U	0.6 U
CALCIUM	9000 J				20000 J		16800	2510	15600
CHROMIUM	10 U				10 U		4 U	2.2 U	4 U
COBALT	50 U				50 U		7 U	4 UJ	7 U
COPPER	25 U				25 U		5 U	2.5 J	5 U
IRON	490 J				150 UJ		2040 J	56.8 J	53 U
LEAD	5 U				5 U		3.4 U	8.8 U	1 U
MAGNESIUM	710 J				1700 J		1240	84.9 J	1170
MANGANESE	6.4 U				7.7 U		91	2 U	8 U
MERCURY	0.011 U				0.2 U		0.15 U	0.1 UJ	0.11 U
NICKEL	40 U				40 U		5 U	2 U	5 U
POTASSIUM	4200 J				3500 J		1860	347 J	1420
SELENIUM	5 U				5 U		6.5	2.5 U	2 U
SILVER	7 U				7 U		1.6 J	1 U	1 U

TABLE C-3
ANALYTICAL RESULTS - GROUNDWATER
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

EU	EU37	EU37	EU38	EU38	EU38	EU39	EU39	EU40	EU46
LOCATION ID	MW06-302	MW06-302	B8-MW-09	B8-MW-09	MW06-303	B8-MW-08	MW06-018	MW06-017	MW06-019
SAMPLE ID	MW06-302-NGW-111502-AVG	MW06-302-NGW-111502-D	B8GW09A-40676-1	B8GW09B-40676-2	MW06-303-NGW-111502	B8GW08A-40676-3	MW06-018-NWG-011999	MW06-017-NWG-020299	MW06-019-NWG-011999
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021115	20021115	19980504	19980504	20021115	19980504	19990119	19990202	19990119
SODIUM	25000 J				27000 J		5910	3690	3810
THALLIUM	5 U				5 U		1 UJ	1 U	1 UJ
VANADIUM	7.7 J				5.1 J		3 U	3 UJ	3 U
ZINC	11 U				7.3 U		12 U	12 U	12 U
MISCELLANEOUS PARAMETERS (UG/L)									
CYANIDE	10 U				10 U		10 U	10 UJ	10 U
FIELD (MG/L)									
DISSOLVED OXYGEN							8.4	41	4.3
FIELD (MV)									
OXIDATION REDUCTION POTENTIAL							75	216	140.4
FIELD (S.U.)									
PH							6.98	5.94	7.09
FIELD (MS/CM)									
CONDUCTIVITY									
SPECIFIC CONDUCTANCE							0.223	0.983	0.177
FIELD (C)									
TEMPERATURE							10.62	5.44	10.86
FIELD (NTU)									
TURBIDITY							17.4	7.9	16.8
EPH MADEP (UG/L)									
C10-C22 AROMATICS									
C11-C22 AROMATICS			100 U	100 U		89 U	180 U	170 U	180 U
C11-C22 AROMATICS (WEIGHTED 1.0)									
C19-C36 ALIPHATICS			47 U	50 U		42 U	84 UJ	80 UJ	85 UJ
C19-C36 ALIPHATICS (WEIGHTED 0.005)									
C9-C18 ALIPHATICS			35 U	37 U		32 U	63 U	60 UJ	64 U
C9-C18 ALIPHATICS (WEIGHTED 0.05)									
EXTRACTABLE PETROLEUM HYDROCARBONS									
TCLP VOLATILES (UG/L)									
BENZENE									

TABLE C-4
DESCRIPTIVE STATISTICS FOR GROUNDWATER SAMPLES COMPARED TO SCREENING CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA RSL for Tapwater[5]	USEPA MCL[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
IOA	**VOLATILES**													
	71-55-6	1,1,1-Trichloroethane	0.12 J	0.12 J	UG/L	MW06-302-NGW-111502-D	1/19	1 - 5	0.12	NA	750 N	200	No	BSL
	75-35-4	1,1-Dichloroethene	0.71 J	0.71 J	UG/L	MW09-012-NWG-012599	1/19	1 - 2	0.71	NA	26 N	7	No	BSL
	78-93-3	2-Butanone	3 J	3 J	UG/L	MW11-202-NWG-053001	1/4	5 - 5	3	NA	490 N	NA	No	BSL
	67-64-1	Acetone	5.1	5.1	UG/L	B116GW04AA	1/8	5 - 5	5.1	NA	1200 N	NA	No	BSL
	71-43-2	**Benzene**	5	5	UG/L	AGGW02AA-D	1/54	1 - 5	5	NA	**0.39 C**	5	**Yes**	ASL
	75-15-0	Carbon Disulfide	2.6 J	4.5 J	UG/L	B116GW04AA	2/19	1 - 5	4.5	NA	72 N	NA	No	BSL
	67-66-3	**Chloroform**	0.23 J	0.23 J	UG/L	MW06-003-NWG-012099	1/19	1 - 5	0.23	3.2	**0.19 C**	80	**Yes**	ASL
	100-41-4	**Ethylbenzene**	8.1	28	UG/L	B8-8GW02A	4/54	1 - 5	28	NA	**1.3 C**	700	**Yes**	ASL
	--	**m+p-Xylenes**	100	110	UG/L	AGGW02AA-D	1/32	1 - 20	110	NA	**19 N**[7]	10000 [8]	**Yes**	ASL
	1634-04-4	Methyl Tert-Butyl Ether	2.6	9 J	UG/L	AGGW03AA, B8GW09A-40676-1, B8GW09B-40676-2	7/41	1 - 15	9	NA	12 C	NA	No	BSL
	95-47-6	**o-Xylene**	0.3 J	21	UG/L	AGGW02AA-D	3/53	1 - 10	21	NA	**19 N**	10000 [8]	**Yes**	ASL
	108-88-3	**Toluene**	0.5 J	150	UG/L	AGGW02AA-D	3/54	1 - 15	150	NA	**86 N**	1000	**Yes**	ASL
	1330-20-7	**Total Xylenes**	1.6 J	131	UG/L	AGGW02AA-D	3/54	1 - 20	131	NA	**19 N**	10000	**Yes**	ASL
	--	Volatile Petroleum Hydrocarbons	920	1200	UG/L	MW09-012-NWG-012599	1/8	20 - 20	1200	NA	NA	NA	No	NTX
	VPH MADEP													
	--	C5-C8 Aliphatics	41	2700	UG/L	AGGW03AA	7/37	5 - 240	2700	NA	NA	NA	No	NTX
	--	C5-C8 Aliphatics (Weighted 0.5)	80	80	UG/L	B116-OGW2A	1/5	20 - 20	80	NA	NA	NA	No	NTX
	--	C5-C8 Aliphatics-Unadj	431	431	UG/L	MW09-010-NWG-012799	1/2	100 - 100	431	NA	NA	NA	No	NTX
	--	C9-C10 Aromatics	26	200	UG/L	AGGW02AA, AGGW02AA-D	5/34	10 - 200	200	NA	NA	NA	No	NTX
	--	C9-C10 Aromatics (Weighted 1.0)	39	39	UG/L	B116-OGW5A	1/5	20 - 20	39	NA	NA	NA	No	NTX
	--	C9-C12 Aliphatics	0.9 J	51	UG/L	MW09-012-NWG-012599	6/37	0.5 - 200	51	NA	NA	NA	No	NTX
	--	C9-C12 Aliphatics (Weighted 0.05)	0.57	2	UG/L	B116-OGW5A	2/5	0.5 - 0.5	2	NA	NA	NA	No	NTX

TABLE C-4
DESCRIPTIVE STATISTICS FOR GROUNDWATER SAMPLES COMPARED TO SCREENING CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA RSL for Tapwater[5]	USEPA MCL[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
IOA	**SEMIVOLATILES**													
	91-57-6	**2-Methylnaphthalene**	0.02	35 J	UG/L	B8-8GW01A	3/44	0.02 - 10	35	NA	**2.7 N**	NA	**Yes**	ASL
	83-32-9	Acenaphthene	0.04	9	UG/L	B8-8GW01A	5/44	0.02 - 10	9	NA	40 N	NA	No	BSL
	208-96-8	Acenaphthylene	0.08	0.1 J	UG/L	B116-OGW5A	2/44	0.02 - 10	0.1	NA	40 N[9]	NA	No	BSL
	120-12-7	Anthracene	0.2	2	UG/L	B8-8GW01A	3/44	0.02 - 10	2	NA	130 N	NA	No	BSL
	--	**Bap Equivalent-Halfnd**	0.0231 J	0.0804 J	UG/L	B8-8GW03A	4/44	0.02 - 10	0.0804	NA	**0.0029 C**	0.2	**Yes**	ASL
	--	**Bap Equivalent-Pos**	0.00003 J	0.0411 J	UG/L	B8-8GW02A	4/44	0.02 - 10	0.0411	NA	**0.0029 C**	0.2	**Yes**	ASL
	56-55-3	**Benzo(a)anthracene**	0.03 J	0.08	UG/L	B8-8GW02A	3/44	0.01 - 10	0.08	**0.0475**	**0.029 C**	NA	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	0.03 J	0.03 J	UG/L	B8-8GW02A	1/44	0.02 - 10	0.03	NA	**0.0029 C**	0.2	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	0.03 J	0.03 J	UG/L	B8-8GW02A	1/44	0.02 - 10	0.03	NA	**0.029 C**	NA	**Yes**	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	1 J	3 J	UG/L	MW09-011-NWG-011599	5/19	5 - 10	3	NA	4.8 C	6	No	BSL
	218-01-9	Chrysene	0.03 J	0.1	UG/L	B8-8GW02A	4/44	0.02 - 10	0.1	NA	2.9 C	NA	No	BSL
	206-44-0	Fluoranthene	0.4	3	UG/L	B8-8GW03A	3/44	0.02 - 10	3	NA	63 N	NA	No	BSL
	86-73-7	Fluorene	0.03	4	UG/L	B8-8GW01A	5/44	0.02 - 10	4	NA	22 N	NA	No	BSL
	91-20-3	**Naphthalene**	0.1	32 J	UG/L	B8-8GW01A	4/49	0.02 - 10	32	NA	**0.14 C**	NA	**Yes**	ASL
	85-01-8	Phenanthrene	0.3	6	UG/L	B8-8GW01A	3/44	0.02 - 10	6	NA	8.7 N[10]	NA	No	BSL
	129-00-0	Pyrene	0.04	2	UG/L	B8-8GW03A	5/44	0.02 - 10	2	NA	8.7 N	NA	No	BSL
	POLYCYCLIC AROMATIC HYDROCARBONS													
	92-52-4	**1,1-Biphenyl**	0.2	0.2	UG/L	B8-8GW01A	1/6	0.02 - 0.07	0.2	NA	**0.083 N**	NA	**Yes**	ASL
	90-12-0	**1-Methylnaphthalene**	0.9	15	UG/L	B8-8GW01A	2/6	0.02 - 0.07	15	NA	**0.97 C**	NA	**Yes**	ASL
	832-69-9	1-Methylphenanthrene	0.2	0.3	UG/L	B8-8GW01A	2/6	0.02 - 0.07	0.3	NA	NA	NA	No	NTX
	2245-38-7	2,3,5-Trimethylnaphthalene	0.01 J	1	UG/L	B8-8GW01A	4/6	0.02 - 0.02	1	NA	NA	NA	No	NTX
	581-42-0	2,6-Dimethylnaphthalene	0.05 J	6	UG/L	B8-8GW01A	3/6	0.02 - 0.02	6	NA	NA	NA	No	NTX
	192-97-2	Benzo(e)pyrene	0.04 J	0.04 J	UG/L	B8-8GW02A	1/6	0.02 - 0.07	0.04	NA	NA	NA	No	NTX
	132-65-0	Dibenzothiophene	0.2	0.7	UG/L	B8-8GW01A	3/6	0.02 - 0.2	0.7	NA	NA	NA	No	NTX
	--	Total Methylnaphthalenes	0.2	0.2	UG/L	B116-OGW5A	1/5	0.2 - 0.2	0.2	NA	NA	NA	No	NTX
	METALS													
	7429-90-5	Aluminum	73.4 J	19400 J	UG/L	MW06-013-NWG-012099	10/19	18 - 296	19400	**15300**	**1600 N**	NA	No	ASL
	7440-36-0	**Antimony**	8.4 J	8.4 J	UG/L	MW06-304-NGW-112002	1/19	1 - 50	8.4	NA	**0.6 N**	**6**	**Yes**	ASL
	7440-38-2	**Arsenic**	2.9 J	7.1	UG/L	B116GW04AA	3/24	1.7 - 5	7.1	NA	**0.045 C**	10	**Yes**	ASL
	7440-39-3	**Barium**	9.2 J	660	UG/L	MW06-013-NWG-012099	14/24	6 - 200	660	**180**	**290 N**	2000	**Yes**	ASL

TABLE C-4
DESCRIPTIVE STATISTICS FOR GROUNDWATER SAMPLES COMPARED TO SCREENING CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA RSL for Tapwater[5]	USEPA MCL[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
IOA	**METALS (CONTINUED)**													
	7440-41-7	**Beryllium**	0.23 J	6.9	UG/L	MW06-013-NWG-012099	2/19	0.2 - 5	6.9	**0.77**	**1.6 N**	**4**	**Yes**	ASL
	7440-70-2	Calcium	1190	81400	UG/L	MW06-013-NWG-012099	17/19	5000 - 5000	81400	**19200**	NA	NA	No	NUT
	7440-47-3	Chromium	1	13	UG/L	MW06-013-NWG-012099	7/24	0.5 - 10	13	18	**0.031 C[11]**	100	No	BKG
	7440-50-8	**Copper**	2.5 J	63.2	UG/L	MW06-013-NWG-012099	3/19	5 - 25	63.2	**13.5**	**62 N**	1300	**Yes**	ASL
	7439-89-6	Iron	56.8 J	2040 J	UG/L	MW06-018-NWG-011999	11/19	52 - 332	2040	44100	**1100 N**	NA	No	BKG
	7439-92-1	**Lead**	1.5 J	46 J	UG/L	B116GW04AB	4/24	1 - 8.8	46	NA	NA	**15**	**Yes**	ASL
	7439-95-4	Magnesium	84.9 J	3400	UG/L	MW11-202-NWG-053001	16/19	5000 - 5000	3400	14200	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	8.8 J	1470 J	UG/L	B116GW08AA	14/19	2 - 8	1470	2680	**32 N**	NA	No	BKG
	7440-02-0	Nickel	8.5 J	8.5 J	UG/L	MW06-304-NGW-112002	1/19	2 - 40	8.5	NA	30 N	NA	No	BSL
	7440-09-7	Potassium	327 J	5940	UG/L	MW06-013-NWG-012099	15/19	1000 - 5000	5940	6200	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	2.6 J	6.5	UG/L	MW06-018-NWG-011999	2/24	2 - 10	6.5	NA	7.8 N	50	No	BSL
	7440-22-4	Silver	1 J	1.6 J	UG/L	MW06-018-NWG-011999	4/24	0.8 - 10	1.6	NA	7.1 N	NA	No	BSL
	7440-23-5	Sodium	2300	67000 J	UG/L	MW06-304-NGW-112002	19/19	-	67000	**47000**	NA	NA	No	NUT
	7440-62-2	**Vanadium**	3.7 J	175	UG/L	MW06-013-NWG-012099	4/19	0.46 - 50	175	**22.6**	**7.8 N**	NA	**Yes**	ASL
	7440-66-6	Zinc	56.8	87.5	UG/L	MW06-013-NWG-012099	3/19	2.9 - 32	87.5	**51.7**	470 N	NA	No	BSL
	EPH MADEP													
	--	C11-C22 Aromatics	180	180	UG/L	B8-8GW01A	1/41	85 - 240	180	NA	NA	NA	No	NTX
	--	C19-C36 Aliphatics	76	76	UG/L	AGGW02AA-D	1/34	0.2 - 200	76	NA	NA	NA	No	NTX

TABLE C-4
DESCRIPTIVE STATISTICS FOR GROUNDWATER SAMPLES COMPARED TO SCREENING CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA RSL for Tapwater[5]	USEPA MCL[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth groundwater background concentrations (Stone and Webster, 2002).
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. RSLs for carcinogens correspond to a integrated lifetime cancer risk of 1E-06; adjusted RSLs for noncarcinogens correspond to a hazard quotient (HQ) of 0.1.
6 - 2012 Edition of the Drinking Water Standards and Health Advisories (USEPA, April 2012).
7 - Value is for m-xylene.
8 - Value is for xylenes.
9 - Value is for acenaphthene.
10 - Value is for pyrene.
11 - Value is for hexavalent chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PAH = Polycyclic aromatic hydrocarbon

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples:

MW09-011-NWG-011599	OGW6A-AA96712A-D	AGGW02AA-D	AGGW03AA
MW11-132-NWG-012899	OGW6A-AA96712B	B8-8GW01A	MW09-012-NWG-012599
MW11-202-NWG-053001	OGW6A-AA96712B-D	B8-8GW02A	MW09-012-NWG-012599-D
B14GW100AA	OGW7A-AA96716	B8-8GW03A	MW06-301-NGW-111802
B116-OGW1A	OGW7A-AA96716A	B8-8GW04A	MW06-013-NWG-012099
B116-OGW1A-D	OGW7A-AA96716B	B8GW11AA	MW06-302-NGW-111502
B116-OGW2A	B116GW08	B8GW11AA-D	MW06-302-NGW-111502-D
B116-OGW3A	B116GW08AA	MW06-304-NGW-112002	B8GW09A-40676-1
B116GW04AA	OGW8A-AA96717	B8-8GW05A	B8GW09B-40676-2
B116GW04AB	OGW8A-AA96717A	B8-8GW05A-D	MW06-303-NGW-111502
B116-OGW4A	OGW8A-AA96717B	B8-8GW06A	B8GW08A-40676-3
MW07-301-NGW-111402	B14W-MW01A	B8GW07A-40676-5	MW06-018-NWG-011999
B116GW05AA	B14W-MW01A-D	B8SB07AB-40611-3	MW06-017-NWG-020299
B116GW05AB	B14GW01AA	B8GW10AA	MW06-019-NWG-011999
B116-OGW5A	MW11-201-NWG-053001	MW06-003-NWG-012099	
OGW6A-AA96712	AGGW04AA	AGGW05AA	
OGW6A-AA96712-D	AGGW01AA	AGGW06AA	
OGW6A-AA96712A	AGGW02AA	MW09-010-NWG-012799	

APPENDIX D

SUPPORTING INFORMATION FOR HEALTH RISK ASSESSMENT

D-1 RAGS Part D Tables
D-2 ProUCL Printouts
D-3 Sample Calculations
D-4 Location-by-Location Risk Estimates
D-5 Lead Modeling Results
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APPENDIX D-1

RAGS PART D TABLES

RAGS Part D Table 1

Selection of Exposure Pathways

LIST OF TABLES
RAGS PART D TABLE 1
SELECTION OF EXPOSURE PATHWAYS

Table No.

1 Selection of Exposure Pathways

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil	Surface Soil	IOA	Commercial Receptors	Child	Ingestion	Quant	Commerical receptors may be exposed to COPCs in surface soil while at the Site.
						Dermal	Quant	
					Adult	Ingestion	Quant	
						Dermal	Quant	
				Residential Receptors	Child	Ingestion	Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
						Dermal	Quant	
					Adult	Ingestion	Quant	
						Dermal	Quant	
		Air	IOA	Commercial Receptors	Child	Inhalation	Quant	Commerical receptors may be exposed to fugitive dust and volatile emissions from surface soil while at the Site.
							Quant	
					Adult	Inhalation	Quant	
							Quant	
				Residential Receptors	Child	Inhalation	Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
							Quant	
					Adult	Inhalation	Quant	
							Quant	
	Subsurface Soil	Subsurface Soil	IOA	Commercial Receptors	Child	Ingestion	Quant	Although exposure to subsurface soil by commercial receptors is considered unlikely at the site, this scenario is included to aid in future risk management decisions.
						Dermal	Quant	
					Adult	Ingestion	Quant	
						Dermal	Quant	
				Residential Receptors	Child	Inhalation	Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
							Quant	
					Adult	Inhalation	Quant	
							Quant	
		Air	IOA	Commercial Receptors	Child	Inhalation	Quant	Although exposure to subsurface soil by commercial receptors is considered unlikely at the site, this scenario is included to aid in future risk management decisions.
							Quant	
					Adult	Inhalation	Quant	
							Quant	
				Residential Receptors	Child	Inhalation	Quant	A future residential scenario is considered to be protective of all potential future receptors at the Site.
							Quant	
					Adult	Inhalation	Quant	
							Quant	

Notes:
COPC - Chemical of Potential Concern.
Quant - Quantitative.

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OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

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2.1 Surface Soil - Direct Contact
2.2 Surface Soil - Migration From Soil to Groundwater
2.3 Subsurface Soil - Direct Contact
2.4 Subsurface Soil - Migration From Soil to Groundwater

RAGS Part D Table 2

Occurrence, Distribution and Selection Of Chemicals of Potential Concern

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
1OA	**VOLATILES**												
	78-93-3	2-Butanone	2.2 J	140 J	UG/KG	SB06012-NSO-120998-0	6/18	2 - 26	140	100	2800000 N	No	BSL
	67-64-1	Acetone	5.9 J	140 J	UG/KG	SB06004-NSO-120898-0	18/21	21 - 51	140	2200	6100000 N	No	BSL
	71-43-2	Benzene	2.2 J	2.2 J	UG/KG	SB07-305-NSO-1104020-D	1/34	0.6 - 310	2.2	NA	1100 C	No	BSL
	100-41-4	Ethylbenzene	0.8 J	0.8 J	UG/KG	B116-OSB5AA	1/34	0.5 - 310	0.8	NA	5400 C	No	BSL
	--	m+p-Xylenes	1.3 J	6.3	UG/KG	SB07-305-NSO-1104020-D	1/10	1 - 1000	6.3	NA	59000 N[7]	No	BSL
	108-88-3	Toluene	1.1 J	6.5	UG/KG	SB07-305-NSO-1104020-D	6/34	0.7 - 940	6.5	NA	500000 N	No	BSL
	1330-20-7	Total Xylenes	1 J	6.3	UG/KG	SB07-305-NSO-1104020-D	3/34	1 - 1200	6.3	NA	63000 N	No	BSL
	VPH MADEP												
	--	C5-C8 Aliphatics	5290	48000 J	UG/KG	B116-OSB5AA	4/15	270 - 12000	48000	NA	NA	No	NTX
	--	C5-C8 Aliphatics (Weighted 0.5)	24000 J	24000 J	UG/KG	B116-OSB5AA	1/5	2900 - 5900	24000	NA	NA	No	NTX
	--	C5-C8 Aliphatics-Unadj	6030	6030	UG/KG	SB09008-NSO-121698-0	1/3	2800 - 4400	6030	NA	NA	No	NTX
	--	C9-C10 Aromatics	1060	3400	UG/KG	B8-8SB4AA	2/15	540 - 5900	3400	NA	NA	No	NTX
	--	C9-C12 Aliphatics	480 J	32000 J	UG/KG	B116-OSB5AA	4/15	27 - 22000	32000	NA	NA	No	NTX
	--	C9-C12 Aliphatics (Weighted 0.05)	1600 J	1600 J	UG/KG	B116-OSB5AA	1/5	83 - 1100	1600	NA	NA	No	NTX
	95-47-6	o-Xylene	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	69000 N	No	BSL
	1330-20-7	Total Xylenes	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	63000 N	No	BSL
	--	Volatile Petroleum Hydrocarbons	7160	21400	UG/KG	B14SB08AA	2/2	-	21400	NA	NA	No	NTX
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7.4 J	1040	UG/KG	SB09008-NSO-121698-0	15/77	2.5 - 1600	1040	NA	23000 N	No	BSL
	83-32-9	Acenaphthene	5.4 J	2800 J	UG/KG	SB06002-NSO-120898-0	19/77	2.5 - 520	2800	NA	340000 N	No	BSL
	208-96-8	Acenaphthylene	8 J	340 J	UG/KG	SB06002-NSO-120898-0	15/77	2.5 - 1600	340	210	340000 N[8]	No	BSL
	120-12-7	Anthracene	5.5 J	5400 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	5400	170	1700000 N	No	BSL
	--	Bap Equivalent-Halfnd	15 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	15 C	Yes	ASL
	--	Bap Equivalent-Pos	0.7 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	15 C	Yes	ASL
	56-55-3	Benzo(a)anthracene	9.3 J	12000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	12000	810	150 C	Yes	ASL
	50-32-8	Benzo(a)pyrene	2.6 J	11000 J	UG/KG	SB06002-NSO-120898-0	50/79	2.2 - 1800	11000	1830	15 C	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	7 J	17000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	17000	770	150 C	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	15 J	8200 J	UG/KG	SB06002-NSO-120898-0	39/77	2.5 - 520	8200	310	170000 N[9]	No	BSL
	207-08-9	Benzo(k)fluoranthene	12 J	9400 J	UG/KG	SB06002-NSO-120898-0	40/77	2.5 - 520	9400	2700	1500 C	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	89 J	1400 J	UG/KG	SB06002-NSO-120898-0	8/25	190 - 370	1400	46000	35000 C	No	BSL
	85-68-7	Butyl Benzyl Phthalate	93 J	150 J	UG/KG	SB06002-NSO-120898-0	3/25	39 - 2800	150	270	260000 C	No	BSL
	86-74-8	Carbazole	79 J	2200	UG/KG	SB06002-NSO-120898-0	6/25	30 - 370	2200	130	NA	No	NTX
	218-01-9	Chrysene	7 J	14000 J	UG/KG	SB06002-NSO-120898-0	45/77	2.5 - 520	14000	1400	15000 C	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	2.6 J	720 J	UG/KG	SB06002-NSO-120898-0	32/79	2.1 - 520	720	96	15 C	Yes	ASL
	132-64-9	Dibenzofuran	120 J	1300	UG/KG	SB06002-NSO-120898-0	6/25	36 - 2800	1300	NA	7800 N	No	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**SEMIVOLATILES (continued)**												
	84-74-2	di-n-Butyl Phthalate	36 J	36 J	UG/KG	SB11-201-NSO-0515010	1/25	190 - 2800	36	95	610000 N	No	BSL
	206-44-0	Fluoranthene	7 J	28000 J	UG/KG	SB06002-NSO-120898-0	50/77	2.5 - 520	28000	2400	230000 N	No	BSL
	86-73-7	Fluorene	10 J	2500 J	UG/KG	SB06002-NSO-120898-0	18/77	2.5 - 520	2500	NA	230000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	6.3 J	8300 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	8300	175	150 C	Yes	ASL
	91-20-3	Naphthalene	7.1 J	900	UG/KG	SB06005-NSO-120898-0	13/77	2.5 - 1600	900	NA	3600 C	No	BSL
	85-01-8	Phenanthrene	11 J	18000 J	UG/KG	SB06002-NSO-120898-0	42/77	2.5 - 520	18000	1500	170000 N[9]	No	BSL
	108-95-2	Phenol	170 J	170 J	UG/KG	SB06008-NSO-120898-0	1/25	70 - 2800	170	70	1800000 N	No	BSL
	129-00-0	Pyrene	13 J	33000 J	UG/KG	SB06002-NSO-120898-0	50/77	18 - 410	33000	1500	170000 N	No	BSL
	PESTICIDES/PCBS												
	72-54-8	4,4'-DDD	4.7 J	53 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	53	6.6	2000 C	No	BSL
	72-55-9	4,4'-DDE	2.1	110 J	UG/KG	SB06002-NSO-120898-0	11/21	1.6 - 3.7	110	320	1400 C	No	BSL
	50-29-3	4,4'-DDT	3.2 J	130 J	UG/KG	SB06002-NSO-120898-0	14/21	1.6 - 3.7	130	325	1700 C	No	BSL
	309-00-2	Aldrin	2.6 J	5.1 J	UG/KG	SB06002-NSO-120898-0	3/21	0.81 - 1.8	5.1	15	29 C	No	BSL
	5103-71-9	alpha-Chlordane	3.5 J	64 J	UG/KG	SB07-305-NSO-1104020	6/20	0.81 - 1.8	64	4.0	1600 C[10]	No	BSL
	11096-82-5	Aroclor-1260	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 37	12000	106	220 C	Yes	ASL
	60-57-1	Dieldrin	22 J	22 J	UG/KG	SB06004-NSO-120898-0	1/21	1.6 - 3.7	22	52	30 C	No	BSL
	33213-65-9	Endosulfan II	4.8 J	26 J	UG/KG	SB06002-NSO-120898-0	4/21	1.6 - 3.7	26	NA	37000 N[11]	No	BSL
	1031-07-8	Endosulfan Sulfate	4.2 J	53 J	UG/KG	SB06002-NSO-120898-0	5/21	1.6 - 3.7	53	18	37000 N[11]	No	BSL
	72-20-8	Endrin	4.9	4.9	UG/KG	MW11131-NSO-122198-0	1/21	1.6 - 3.7	4.9	51	1800 N	No	BSL
	7421-93-4	Endrin Aldehyde	3.8	41 J	UG/KG	SB06002-NSO-120898-0	7/20	1.6 - 3.7	41	9.5	1800 N[12]	No	BSL
	53494-70-5	Endrin Ketone	4.2	74 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	74	NA	1800 N[12]	No	BSL
	5103-74-2	gamma-Chlordane	2.3 J	52 J	UG/KG	SB07-305-NSO-1104020	6/21	0.81 - 1.8	52	4.0	1600 C[10]	No	BSL
	76-44-8	Heptachlor	0.91 J	3.5 J	UG/KG	MW11131-NSO-122198-0	2/21	0.81 - 1.8	3.5	18	110 C	No	BSL
	1024-57-3	Heptachlor Epoxide	2.7 J	200 J	UG/KG	SB06002-NSO-120898-0	11/21	0.81 - 1.8	200	26	53 C	Yes	ASL
	72-43-5	Methoxychlor	19 J	58 J	UG/KG	SB06007-NSO-120898-0	5/21	8.1 - 18	58	NA	31000 N	No	BSL
	1336-36-3	Total Aroclors	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 42.1	12000	NA	220 C[13]	Yes	ASL
	METALS												
	7429-90-5	Aluminum	2600 J	13000	MG/KG	IOA-SS-EU30-0002	58/58	-	13000	10500	7700 N	Yes	ASL
	7440-36-0	Antimony	0.21 J	1.3	MG/KG	SB07-308-NSO-1104020	11/58	0.07 - 6.4	1.3	1.9	3.1 N	No	BSL, BKG
	7440-38-2	Arsenic	0.75	36	MG/KG	IOA-SS-EU49-0002	61/61	-	36	5.3	0.39 C	Yes	ASL
	7440-39-3	Barium	8.7 J	123	MG/KG	SB06005-NSO-120898-0	57/61	11 - 18	123	49.9	1500 N	No	BSL
	7440-41-7	Beryllium	0.27 J	0.8	MG/KG	SB06012-NSO-120998-0	44/58	0.22 - 0.54	0.8	0.30	16 N	No	BSL
	7440-43-9	Cadmium	0.028 J	4	MG/KG	SB06008-NSO-120898-0	33/61	0.04 - 0.62	4	0.90	7 N	No	BSL
	7440-70-2	Calcium	320	3780	MG/KG	SB06010-NSO-120998-0	55/58	140 - 440	3780	6360	NA	No	NUT, BKG
	18540-29-9	Chromium	5.1	149	MG/KG	SB06005-NSO-120898-0	61/61	-	149	10.1	0.29 C[14]	Yes	ASL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**METALS (continued)**												
	7440-48-4	Cobalt	1.4	7.4	MG/KG	SB07-308-NSO-1104020	55/58	1.7 - 5.4	7.4	4.0	2.3 N	Yes	ASL
	7440-50-8	Copper	3.2	62.8	MG/KG	SB06002-NSO-120898-0	57/58	2.4 - 2.4	62.8	26.2	310 N	No	BSL
	7439-89-6	Iron	6100	45000	MG/KG	IOA-SS-EU49-0002	58/58	-	45000	11300	5500 N	Yes	ASL
	7439-92-1	Lead	4.6	1280	MG/KG	SB06005-NSO-120898-0	65/65	-	1280	300	400	Yes	ASL
	7439-95-4	Magnesium	530	4900	MG/KG	IOA-SS-EU47-0002	58/58	-	4900	1960	NA	No	NUT
	7439-96-5	Manganese	60	440 J	MG/KG	IOA-SS-EU31-0002	58/58	-	440	310	180 N	Yes	ASL
	7439-97-6	Mercury	0.001 J	0.15	MG/KG	IOA-SS-EU40-0002	41/60	0.011 - 0.2	0.15	0.49	2.3 N[15]	No	BSL, BKG
	7440-02-0	Nickel	3.6 J	16	MG/KG	IOA-SS-EU27-0002	57/58	4.3 - 4.3	16	17.2	150 N	No	BSL, BKG
	7440-09-7	Potassium	230	660 J	MG/KG	SB07-307-NSO-1104020	54/58	170 - 540	660	630	NA	No	NUT
	7782-49-2	Selenium	0.24 J	2.6 J	MG/KG	SB06-351-NSO-072503	34/61	0.18 - 11	2.6	3.0	39 N	No	BSL, BKG
	7440-22-4	Silver	0.06 J	0.39	MG/KG	IOA-SS-EU40-0002	7/59	0.06 - 1.1	0.39	NA	39 N	No	BSL
	7440-23-5	Sodium	28 J	235	MG/KG	SB06005-NSO-120898-0	43/58	38.8 - 540	235	270	NA	No	NUT, BKG
	7440-28-0	Thallium	0.21 J	0.39	MG/KG	IOA-SS-EU01-0002	3/58	0.066 - 1.5	0.39	1.8	0.078 N	No	BKG
	7440-62-2	Vanadium	11	45.2	MG/KG	SB06005-NSO-120898-0	58/58	-	45.2	89.1	39 N	No	BKG
	7440-66-6	Zinc	13	150	MG/KG	SB06005-NSO-120898-0	58/58	-	150	73.8	2300 N	No	BSL
	MISCELLANEOUS PARAMETERS												
	57-12-5	Cyanide	0.22	0.22	MG/KG	SB06009-NSO-120898-0	1/24	0.21 - 1.2	0.22	NA	2.2 N	No	BSL
	EPH MADEP												
	--	C11-C22 Aromatics	22000 J	736000	UG/KG	SB09008-NSO-121698-0	11/33	85 - 92000	736000	NA	NA	No	NTX
	--	C11-C22 Aromatics (Weighted 1.0)	160000 J	160000 J	UG/KG	B116-OSB1AA	1/5	14000 - 92000	160000	NA	NA	No	NTX
	--	C11-C22 Aromatics-Unadj	737000	737000	UG/KG	SB09008-NSO-121698-0	1/4	85 - 18000	737000	NA	NA	No	NTX
	--	C19-C36 Aliphatics	1250	410000 J	UG/KG	B116-OSB1AA	19/33	21 - 54000	410000	NA	NA	No	NTX
	--	C19-C36 Aliphatics (Weighted 0.005)	140 J	2100 J	UG/KG	B116-OSB1AA	4/5	27 - 30	2100	NA	NA	No	NTX
	--	C9-C18 Aliphatics	2500	190000 J	UG/KG	B116-OSB1AA	16/33	155 - 54000	190000	NA	NA	No	NTX
	--	C9-C18 Aliphatics (Weighted 0.05)	3100 J	9300 J	UG/KG	B116-OSB1AA	2/5	250 - 980	9300	NA	NA	No	NTX
	--	Extractable Petroleum Hydrocarbons	69000 J	340000 J	UG/KG	SB06002-NSO-120898-0	9/14	10000 - 34000	340000	NA	NA	No	NTX
	DIOXINS/FURANS												
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	32	4610	NG/KG	IOA-SS-EU43-0002	15/16	165.04 - 165.04	4610	710	15000 C	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	5.07	57	NG/KG	SB06-304-NSO-0716030	14/16	0.41 - 0.986	57	46	15000 C	No	BSL
	35822-46-9	1,2,3,4,6,7,8-HPCDD	1.04 J	270	NG/KG	IOA-SS-EU43-0002	13/16	1.7 - 7.36	270	130	450 C	No	BSL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.404 J	40	NG/KG	SB06-351-NSO-072503	15/16	0.47 - 0.47	40	49	450 C	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.35	2.27 J	NG/KG	IOA-SS-EU43-0002	6/16	0.25 - 2	2.27	7.3	450 C	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.11 J	2.23 J	NG/KG	IOA-SS-EU43-0002	11/16	0.21 - 2.4	2.23	8.4	45 C	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.51 J	5.13	NG/KG	IOA-SS-EU09-0002	14/16	0.2 - 0.247	5.13	51	45 C	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.24 J	9	NG/KG	SB06-351-NSO-072503	12/16	0.21 - 0.539	9	19	45 C	No	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**DIOXINS/FURANS (continued)**												
	57117-44-9	1,2,3,6,7,8-HXCDF	0.519 J	7.61	NG/KG	IOA-SS-EU09-0002	12/16	0.19 - 2.8	7.61	47	45 C	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.17 J	4.18	NG/KG	IOA-SS-EU43-0002	12/16	0.2 - 0.83	4.18	25	45 C	No	BSL
	72918-21-9	1,2,3,7,8,9-HXCDF	0.366 J	2.02 J	NG/KG	IOA-SS-EU09-0002	6/16	0.17 - 1.07	2.02	0.26	45 C	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	0.239 J	4.1 J	NG/KG	IOA-SS-EU43-0002	7/16	0.09 - 0.67	4.1	9.5	4.5 C	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.248 J	1.53 J	NG/KG	IOA-SS-EU43-0002	11/16	0.33 - 1.1	1.53	8.7	150 C	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.62 J	17.5	NG/KG	IOA-SS-EU09-0002	12/16	0.247 - 2.1	17.5	32	45 C	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	0.142 J	24.3	NG/KG	IOA-SS-EU09-0002	14/16	0.33 - 0.62	24.3	11	15 C	Yes	ASL
	1746-01-6	2,3,7,8-TCDD	0.366 J	4.2	NG/KG	SB06-304-NSO-0716030	8/16	0.177 - 0.367	4.2	NA	4.5 C	No	BSL
	51207-31-9	2,3,7,8-TCDF	0.23 J	7.1	NG/KG	SB06-351-NSO-072503	6/16	0.194 - 1.15	7.1	22	45 C	No	BSL
	--	2,3,7,8-TCDD Equivalents-Halfnd	0.477 J	15.2 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.2	NA	4.5 C	Yes	ASL
	--	2,3,7,8-TCDD Equivalents	0.0141 J	15.1 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.1	NA	4.5 C	Yes	ASL
	37871-00-4	Total HPCDD	2.54 J	827	NG/KG	IOA-SS-EU43-0002	15/17	1.9 - 2.2	827	170	NA	No	NTX
	38998-75-3	Total HPCDF	0.563 J	96	NG/KG	SB06-351-NSO-072503	16/17	0.47 - 0.47	96	76	NA	No	NTX
	34465-46-8	Total HXCDD	1.33	67.4	NG/KG	IOA-SS-EU43-0002	15/17	0.493 - 0.59	67.4	110	NA	No	NTX
	55684-94-1	Total HXCDF	0.431 J	169 J	NG/KG	IOA-SS-EU09-0002	16/17	0.67 - 0.67	169	390	NA	No	NTX
	36088-22-9	Total PECDD	0.34	15.4	NG/KG	IOA-SS-EU43-0002	14/17	0.247 - 2.3	15.4	75	NA	No	NTX
	30402-15-4	Total PECDF	0.664 J	225	NG/KG	IOA-SS-EU09-0002	16/17	1.3 - 1.3	225	560	NA	No	NTX
	41903-57-5	Total TCDD	0.36 J	18	NG/KG	SB06-343-NSO-072503	14/17	0.197 - 0.32	18	42	NA	No	NTX
	55722-27-5	Total TCDF	0.922 J	97	NG/KG	SB06-343-NSO-072503	17/17	-	97	930	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth surface soil background concentrations (Stone and Webster, 2002).
5 - United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. Values correspond to a cancer risk level of 1E-06 or an adjusted hazard quotient (HQ) of 0.1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - The value is for m-xylene.
8 - The value for acenaphthene is used as a surrogate for acenaphthylene.
9 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
10 - The value is for chlordane.
11 - The value for endosulfan is used as a surrogate for endosulfan II and endosulfan sulfate.
12 - The value for endrin is used as a surrogate for endrin aldehyde and endrin ketone.
13 - The value is for polychlorinated biphenyls (high risk).
14 - The value is for hexavalent chromium.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PAH = Polycyclic aromatic hydrocarbon

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

15 - The value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:

IOA-SS-EU01-0002	IOA-SS-EU10-0002	IOA-SS-EU21-0002	IOA-SS-EU29-0002-D	IOA-SS-EU46-0002-D
IOA-SS-EU01-0002-D	SB11-201-NSO-0515010	SB09008-NSO-121698-0	IOA-SS-EU30-0002	IOA-SS-EU47-0002
IOA-SS-EU02-0002	IOA-SS-EU12-0002	IOA-SS-EU22-0002	IOA-SS-EU31-0002	IOA-SS-EU48-0002
IOA-SS-EU03-0002	IOA-SS-EU13-0002	SB09009-NSO-121698-0	IOA-SS-EU32-0002	IOA-SS-EU49-0002
IOA-SS-EU04-0002	IOA-SS-EU14-0002	IOA-SS-EU23-0002	IOA-SS-EU32-0002-D	
B116-OSB1AA	SB07-312-NSO-1104020	SB06-343-NSO-072503	IOA-SS-EU33-0002	
B116-OSB1AA-D	IOA-SS-EU15-0002	B8-8SB2AA	IOA-SS-EU34-0002	
B116-OSB2AA	IOA-SS-EU15-0002-D	B8-8SB3AA	IOA-SS-EU35-0002	
B116-OSB3AA	SB07-305-NSO-1104025	B8-8SB4AA	IOA-SS-EU36-0002	
B116-OSB4AA	SB07-305-NSO-1104020	SB06010-NSO-120998-0	IOA-SS-EU37-0002	
B116-OSB4AA-D	SB07-305-NSO-1104020-D	SB06011-NSO-120998-0	MW06013-NSO-112498-0	
B14SB09AA	SB07-306-NSO-1104025	SB06-304-NSO-0716030	SB06008-NSO-120898-0	
IOA-SS-EU06-0002	SB07-306-NSO-1104020	B8-8SB5AA	SB06008-NSO-120898-0-D	
IOA-SS-EU07-0002	SB07-311-NSO-1104020	B8-8SB6AA	SB06009-NSO-120898-0	
SB07-339-NSO-101503	SB07-326-NSO-0716031	IOA-SS-EU27-0002	SB06-351-NSO-072503	
SB07-307-NSO-1104025	SB07-326-NSO-0716032	S1SWE	IOA-SS-EU38-0002	
SB07-307-NSO-1104020	SB07-327-NSO-0716031	S1SWN	SB06006-NSO-120898-0	
SB07-308-NSO-1104025	SB07-327-NSO-0716032	S1SWW	SB06007-NSO-120898-0	
SB07-308-NSO-1104020	SB07-328-NSO-0716030	S2SWE	SB06012-NSO-120998-0	
SB07-309-NSO-1104025	SB07-328-NSO-0716031	S2SWE-D	IOA-SS-EU39-0002	
SB07-309-NSO-1104020	SB07-329-NSO-0716030	S2SWN	SB06004-NSO-120898-0	
SB07-310-NSO-0716030	SB07-329-NSO-0716031	S2SWW	SB06005-NSO-120898-0	
SB07-310-NSO-1104020	SB07-336-NSO-101503	NAS-AOC13-SW01	SS06-020-NSO-102798	
SB07-330-NSO-0716030	SB07-337-NSO-101503	NAS-AOC13-SW01-D	SS06-020-NSO-102798-D	
SB07-330-NSO-0716031	SB07-338-NSO-101503	NAS-AOC13-SW02	IOA-SS-EU40-0002	
SB07-331-NSO-0716030	IOA-SS-EU16-0002	NAS-AOC13-SW03	IOA-SS-EU41-0002	
SB07-331-NSO-0716031	IOA-SS-EU17-0002	NAS-AOC13-SW04	IOA-SS-EU42-0002	
SB07-340-NSO-101503	MW11131-NSO-122198-0	IOA-SS-EU28-0002	IOA-SS-EU43-0002	
IOA-SS-EU09-0002	SB11-205-NSO-0515010	SB06001-NSO-120898-0	IOA-SS-EU44-0002	
B116-OSB5AA	IOA-SS-EU19-0002	SB06002-NSO-120898-0	IOA-SS-EU45-0002	
B14SB08AA	SB09007-NSO-121698-0	IOA-SS-EU29-0002	IOA-SS-EU46-0002	

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	78-93-3	2-Butanone	2.2 J	140 J	UG/KG	SB06012-NSO-120998-0	6/18	2 - 26	140	100	1000	No	BSL
	67-64-1	Acetone	5.9 J	140 J	UG/KG	SB06004-NSO-120898-0	18/21	21 - 51	140	2200	2400	No	BSL
	71-43-2	Benzene	2.2 J	2.2 J	UG/KG	SB07-305-NSO-1104020-D	1/34	0.6 - 310	2.2	NA	0.2	Yes	ASL
	100-41-4	Ethylbenzene	0.8 J	0.8 J	UG/KG	B116-OSB5AA	1/34	0.5 - 310	0.8	NA	1.5	No	BSL
	- -	m+p-Xylenes	1.3 J	6.3	UG/KG	SB07-305-NSO-1104020-D	1/10	1 - 1000	6.3	NA	190	No	BSL
	108-88-3	Toluene	1.1 J	6.5	UG/KG	SB07-305-NSO-1104020-D	6/34	0.7 - 940	6.5	NA	590	No	BSL
	1330-20-7	Total Xylenes	1 J	6.3	UG/KG	SB07-305-NSO-1104020-D	3/34	1 - 1200	6.3	NA	190	No	BSL
	VPH MADEP												
	--	C5-C8 Aliphatics	5290	48000 J	UG/KG	B116-OSB5AA	4/15	270 - 12000	48000	NA	NA	No	NTX
	--	C5-C8 Aliphatics (Weighted 0.5)	24000 J	24000 J	UG/KG	B116-OSB5AA	1/5	2900 - 5900	24000	NA	NA	No	NTX
	--	C5-C8 Aliphatics-Unadj	6030	6030	UG/KG	SB09008-NSO-121698-0	1/3	2800 - 4400	6030	NA	NA	No	NTX
	--	C9-C10 Aromatics	1060	3400	UG/KG	B8-8SB4AA	2/15	540 - 5900	3400	NA	NA	No	NTX
	--	C9-C12 Aliphatics	480 J	32000 J	UG/KG	B116-OSB5AA	4/15	27 - 22000	32000	NA	NA	No	NTX
	--	C9-C12 Aliphatics (Weighted 0.05)	1600 J	1600 J	UG/KG	B116-OSB5AA	1/5	83 - 1100	1600	NA	NA	No	NTX
	95-47-6	o-Xylene	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	190	No	BSL
	1330-20-7	Total Xylenes	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	190	No	BSL
	--	Volatile Petroleum Hydrocarbons	7160	21400	UG/KG	B14SB08AA	2/2	-	21400	NA	NA	No	NTX
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7.4 J	1040	UG/KG	SB09008-NSO-121698-0	15/77	2.5 - 1600	1040	NA	140	Yes	ASL
	83-32-9	Acenaphthene	5.4 J	2800 J	UG/KG	SB06002-NSO-120898-0	19/77	2.5 - 520	2800	NA	4100	No	BSL
	208-96-8	Acenaphthylene	8 J	340 J	UG/KG	SB06002-NSO-120898-0	15/77	2.5 - 1600	340	210	4100 [7]	No	BSL
	120-12-7	Anthracene	5.5 J	5400 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	5400	170	42000	No	BSL
	--	Bap Equivalent-Halfnd	15 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	NA	No	NTX
	--	Bap Equivalent-Pos	0.7 J	15600 J	UG/KG	SB06002-NSO-120898-0	56/79	2.2 - 1800	15600	NA	NA	No	NTX
	56-55-3	Benzo(a)anthracene	9.3 J	12000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	12000	810	10	Yes	ASL
	50-32-8	Benzo(a)pyrene	2.6 J	11000 J	UG/KG	SB06002-NSO-120898-0	50/79	2.2 - 1800	11000	1830	3.5	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	7 J	17000 J	UG/KG	SB06002-NSO-120898-0	47/77	2.5 - 520	17000	770	35	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	15 J	8200 J	UG/KG	SB06002-NSO-120898-0	39/77	2.5 - 520	8200	310	9500 [8]	No	BSL
	207-08-9	Benzo(k)fluoranthene	12 J	9400 J	UG/KG	SB06002-NSO-120898-0	40/77	2.5 - 520	9400	2700	350	Yes	ASL
	117-81-7	Bis(2-ethylhexyl)phthalate	89 J	1400 J	UG/KG	SB06002-NSO-120898-0	8/25	190 - 370	1400	46000	1100	Yes	ASL
	85-68-7	Butyl Benzyl Phthalate	93 J	150 J	UG/KG	SB06002-NSO-120898-0	3/25	39 - 2800	150	270	200	No	BSL
	86-74-8	Carbazole	79 J	2200	UG/KG	SB06002-NSO-120898-0	6/25	30 - 370	2200	130	NA	No	NTX
	218-01-9	Chrysene	7 J	14000 J	UG/KG	SB06002-NSO-120898-0	45/77	2.5 - 520	14000	1400	1100	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	2.6 J	720 J	UG/KG	SB06002-NSO-120898-0	32/79	2.1 - 520	720	96	11	Yes	ASL
	132-64-9	Dibenzofuran	120 J	1300	UG/KG	SB06002-NSO-120898-0	6/25	36 - 2800	1300	NA	110	Yes	ASL
	84-74-2	di-n-Butyl Phthalate	36 J	36 J	UG/KG	SB11-201-NSO-0515010	1/25	190 - 2800	36	95	1700	No	BSL
	206-44-0	Fluoranthene	7 J	28000 J	UG/KG	SB06002-NSO-120898-0	50/77	2.5 - 520	28000	2400	70000	No	BSL
	86-73-7	Fluorene	10 J	2500 J	UG/KG	SB06002-NSO-120898-0	18/77	2.5 - 520	2500	NA	4000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	6.3 J	8300 J	UG/KG	SB06002-NSO-120898-0	31/77	2.5 - 520	8300	175	200	Yes	ASL
	91-20-3	Naphthalene	7.1 J	900	UG/KG	SB06005-NSO-120898-0	13/77	2.5 - 1600	900	NA	0.47	Yes	ASL
	85-01-8	Phenanthrene	11 J	18000 J	UG/KG	SB06002-NSO-120898-0	42/77	2.5 - 520	18000	1500	9500 [8]	Yes	ASL
	108-95-2	Phenol	170 J	170 J	UG/KG	SB06008-NSO-120898-0	1/25	70 - 2800	170	70	2600	No	BSL
	129-00-0	Pyrene	13 J	33000 J	UG/KG	SB06002-NSO-120898-0	50/77	18 - 410	33000	1500	9500	Yes	ASL

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**PESTICIDES/PCBS**												
	72-54-8	**4,4'-DDD**	4.7 J	53 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	53	6.6	6.4	Yes	ASL
	72-55-9	**4,4'-DDE**	2.1	110 J	UG/KG	SB06002-NSO-120898-0	11/21	1.6 - 3.7	110	320	46	Yes	ASL
	50-29-3	**4,4'-DDT**	3.2 J	130 J	UG/KG	SB06002-NSO-120898-0	14/21	1.6 - 3.7	130	325	67	Yes	ASL
	309-00-2	**Aldrin**	2.6 J	5.1 J	UG/KG	SB06002-NSO-120898-0	3/21	0.81 - 1.8	5.1	15	0.65	Yes	ASL
	5103-71-9	**alpha-Chlordane**	3.5 J	64 J	UG/KG	SB07-305-NSO-1104020	6/20	0.81 - 1.8	64	4.0	13 [9]	Yes	ASL
	11096-82-5	**Aroclor-1260**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 37	12000	106	24	Yes	ASL
	60-57-1	**Dieldrin**	22 J	22 J	UG/KG	SB06004-NSO-120898-0	1/21	1.6 - 3.7	22	52	0.061	Yes	ASL
	33213-65-9	Endosulfan II	4.8 J	26 J	UG/KG	SB06002-NSO-120898-0	4/21	1.6 - 3.7	26	NA	1100 [10]	No	BSL
	1031-07-8	Endosulfan Sulfate	4.2 J	53 J	UG/KG	SB06002-NSO-120898-0	5/21	1.6 - 3.7	53	18	1100 [10]	No	BSL
	72-20-8	Endrin	4.9	4.9	UG/KG	MW11131-NSO-122198-0	1/21	1.6 - 3.7	4.9	51	68	No	BSL
	7421-93-4	Endrin Aldehyde	3.8	41 J	UG/KG	SB06002-NSO-120898-0	7/20	1.6 - 3.7	41	9.5	68 [11]	No	BSL
	53494-70-5	**Endrin Ketone**	4.2	74 J	UG/KG	SB06002-NSO-120898-0	7/21	1.6 - 3.7	74	NA	68 [11]	Yes	ASL
	5103-74-2	**gamma-Chlordane**	2.3 J	52 J	UG/KG	SB07-305-NSO-1104020	6/21	0.81 - 1.8	52	4.0	13 [9]	Yes	ASL
	76-44-8	**Heptachlor**	0.91 J	3.5 J	UG/KG	MW11131-NSO-122198-0	2/21	0.81 - 1.8	3.5	18	0.14	Yes	ASL
	1024-57-3	**Heptachlor Epoxide**	2.7 J	200 J	UG/KG	SB06002-NSO-120898-0	11/21	0.81 - 1.8	200	26	0.068	Yes	ASL
	72-43-5	Methoxychlor	19 J	58 J	UG/KG	SB06007-NSO-120898-0	5/21	8.1 - 18	58	NA	1500	No	BSL
	--	**Total Aroclors**	4.1 J	12000	UG/KG	IOA-SS-EU10-0002	51/82	7.1 - 42.1	12000	NA	26 [12]	Yes	ASL
	METALS												
	7429-90-5	Aluminum	2600 J	13000	MG/KG	IOA-SS-EU30-0002	58/58	-	13000	10500	23000	No	BSL
	7440-36-0	Antimony	0.21 J	1.3	MG/KG	SB07-308-NSO-1104020	11/58	0.07 - 6.4	1.3	1.9	0.27	No	BKG
	7440-38-2	**Arsenic**	0.75	36	MG/KG	IOA-SS-EU49-0002	61/61	-	36	5.3	0.0013	Yes	ASL
	7440-39-3	**Barium**	8.7 J	123	MG/KG	SB06005-NSO-120898-0	57/61	11 - 18	123	49.9	120	Yes	ASL
	7440-41-7	Beryllium	0.27 J	0.8	MG/KG	SB06012-NSO-120998-0	44/58	0.22 - 0.54	0.8	0.30	13	No	BSL
	7440-43-9	**Cadmium**	0.028 J	4	MG/KG	SB06008-NSO-120898-0	33/61	0.04 - 0.62	4	0.90	0.52	Yes	ASL
	7440-70-2	Calcium	320	3780	MG/KG	SB06010-NSO-120998-0	55/58	140 - 440	3780	6360	NA	No	NUT, BKG
	18540-29-9	**Chromium**	5.1	149	MG/KG	SB06005-NSO-120898-0	61/61	-	149	10.1	0.00059 [13]	Yes	ASL
	7440-48-4	**Cobalt**	1.4	7.4	MG/KG	SB07-308-NSO-1104020	55/58	1.7 - 5.4	7.4	4.0	0.21	Yes	ASL
	7440-50-8	**Copper**	3.2	62.8	MG/KG	SB06002-NSO-120898-0	57/58	2.4 - 2.4	62.8	26.2	22	Yes	ASL
	7439-89-6	**Iron**	6100	45000	MG/KG	IOA-SS-EU49-0002	58/58	-	45000	11300	270	Yes	ASL
	7439-92-1	**Lead**	4.6	1280	MG/KG	SB06005-NSO-120898-0	65/65	-	1280	300	14 [14]	Yes	ASL
	7439-95-4	Magnesium	530	4900	MG/KG	IOA-SS-EU47-0002	58/58	-	4900	1960	NA	No	NUT
	7439-96-5	**Manganese**	60	440 J	MG/KG	IOA-SS-EU31-0002	58/58	-	440	310	21	Yes	ASL
	7439-97-6	Mercury	0.001 J	0.15	MG/KG	IOA-SS-EU40-0002	41/60	0.011 - 0.2	0.15	0.49	0.033	No	BKG
	7440-02-0	Nickel	3.6 J	16	MG/KG	IOA-SS-EU27-0002	57/58	4.3 - 4.3	16	17.2	20	No	BSL, BKG
	7440-09-7	Potassium	230	660 J	MG/KG	SB07-307-NSO-1104020	54/58	170 - 540	660	630	NA	No	NUT
	7782-49-2	Selenium	0.24 J	2.6 J	MG/KG	SB06-351-NSO-072503	34/61	0.18 - 11	2.6	3.0	0.4	No	BKG
	7440-22-4	Silver	0.06 J	0.39	MG/KG	IOA-SS-EU40-0002	7/59	0.06 - 1.1	0.39	NA	0.6	No	BSL
	7440-23-5	Sodium	28 J	235	MG/KG	SB06005-NSO-120898-0	43/58	38.8 - 540	235	270	NA	No	NUT, BKG
	7440-28-0	Thallium	0.21 J	0.39	MG/KG	IOA-SS-EU01-0002	3/58	0.066 - 1.5	0.39	1.8	0.011	No	BKG
	7440-62-2	Vanadium	11	45.2	MG/KG	SB06005-NSO-120898-0	58/58	-	45.2	89.1	78	No	BSL, BKG
	7440-66-6	Zinc	13	150	MG/KG	SB06005-NSO-120898-0	58/58	-	150	73.8	290	No	BSL
	MISCELLANEOUS PARAMETERS												
	57-12-5	**Cyanide**	0.22	0.22	MG/KG	SB06009-NSO-120898-0	1/24	0.21 - 1.2	0.22	NA	0.014	Yes	ASL

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NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**EPH MADEP**												
	--	C11-C22 Aromatics	22000 J	736000	UG/KG	SB09008-NSO-121698-0	11/33	85 - 92000	736000	NA	NA	No	NTX
	--	C11-C22 Aromatics (Weighted 1.0)	160000 J	160000 J	UG/KG	B116-OSB1AA	1/5	14000 - 92000	160000	NA	NA	No	NTX
	--	C11-C22 Aromatics-Unadj	737000	737000	UG/KG	SB09008-NSO-121698-0	1/4	85 - 18000	737000	NA	NA	No	NTX
	--	C19-C36 Aliphatics	1250	410000 J	UG/KG	B116-OSB1AA	19/33	21 - 54000	410000	NA	NA	No	NTX
	--	C19-C36 Aliphatics (Weighted 0.005)	140 J	2100 J	UG/KG	B116-OSB1AA	4/5	27 - 30	2100	NA	NA	No	NTX
	--	C9-C18 Aliphatics	2500	190000 J	UG/KG	B116-OSB1AA	16/33	155 - 54000	190000	NA	NA	No	NTX
	--	C9-C18 Aliphatics (Weighted 0.05)	3100 J	9300 J	UG/KG	B116-OSB1AA	2/5	250 - 980	9300	NA	NA	No	NTX
	--	Extractable Petroleum Hydrocarbons	69000 J	340000 J	UG/KG	SB06002-NSO-120898-0	9/14	10000 - 34000	340000	NA	NA	No	NTX
	DIOXINS/FURANS												
	3268-87-9	**1,2,3,4,6,7,8,9-OCDD**	32	4610	NG/KG	IOA-SS-EU43-0002	15/16	165.04 - 165.04	4610	710	870	Yes	ASL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	5.07	57	NG/KG	SB06-304-NSO-0716030	14/16	0.41 - 0.986	57	46	870	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	1.04 J	270	NG/KG	IOA-SS-EU43-0002	13/16	1.7 - 7.36	270	130	26	Yes	ASL
	67562-39-4	**1,2,3,4,6,7,8-HPCDF**	0.404 J	40	NG/KG	SB06-351-NSO-072503	15/16	0.47 - 0.47	40	49	26	Yes	ASL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.35	2.27 J	NG/KG	IOA-SS-EU43-0002	6/16	0.25 - 2	2.27	7.3	26	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.11 J	2.23 J	NG/KG	IOA-SS-EU43-0002	11/16	0.21 - 2.4	2.23	8.4	2.6	No	BSL
	70648-26-9	**1,2,3,4,7,8-HXCDF**	0.51 J	5.13	NG/KG	IOA-SS-EU09-0002	14/16	0.2 - 0.247	5.13	51	2.6	Yes	ASL
	57653-85-7	**1,2,3,6,7,8-HXCDD**	0.24 J	9	NG/KG	SB06-351-NSO-072503	12/16	0.21 - 0.539	9	19	2.6	Yes	ASL
	57117-44-9	**1,2,3,6,7,8-HXCDF**	0.519 J	7.61	NG/KG	IOA-SS-EU09-0002	12/16	0.19 - 2.8	7.61	47	2.6	Yes	ASL
	19408-74-3	**1,2,3,7,8,9-HXCDD**	0.17 J	4.18	NG/KG	IOA-SS-EU43-0002	12/16	0.2 - 0.83	4.18	25	2.6	Yes	ASL
	72918-21-9	1,2,3,7,8,9-HXCDF	0.366 J	2.02 J	NG/KG	IOA-SS-EU09-0002	6/16	0.17 - 1.07	2.02	0.26	2.6	No	BSL
	40321-76-4	**1,2,3,7,8-PECDD**	0.239 J	4.1 J	NG/KG	IOA-SS-EU43-0002	7/16	0.09 - 0.67	4.1	9.5	0.26	Yes	ASL
	57117-41-6	1,2,3,7,8-PECDF	0.248 J	1.53 J	NG/KG	IOA-SS-EU43-0002	11/16	0.33 - 1.1	1.53	8.7	8.7	No	BSL
	60851-34-5	**2,3,4,6,7,8-HXCDF**	0.62 J	17.5	NG/KG	IOA-SS-EU09-0002	12/16	0.247 - 2.1	17.5	32	2.6	Yes	ASL
	57117-31-4	**2,3,4,7,8-PECDF**	0.142 J	24.3	NG/KG	IOA-SS-EU09-0002	14/16	0.33 - 0.62	24.3	11	0.87	Yes	ASL
	1746-01-6	**2,3,7,8-TCDD**	0.366 J	4.2	NG/KG	SB06-304-NSO-0716030	8/16	0.177 - 0.367	4.2	NA	0.26	Yes	ASL
	51207-31-9	**2,3,7,8-TCDF**	0.23 J	7.1	NG/KG	SB06-351-NSO-072503	6/16	0.194 - 1.15	7.1	22	2.6	Yes	ASL
	--	2,3,7,8-TCDD Equivalents-Halfnd	0.477 J	15.2 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.2	NA	NA	No	NTX
	--	2,3,7,8-TCDD Equivalents	0.0141	15.1 J	NG/KG	IOA-SS-EU43-0002	16/16	-	15.1	NA	NA	No	NTX
	37871-00-4	Total HPCDD	2.54 J	827	NG/KG	IOA-SS-EU43-0002	15/17	1.9 - 2.2	827	170	NA	No	NTX
	38998-75-3	Total HPCDF	0.563 J	96	NG/KG	SB06-351-NSO-072503	16/17	0.47 - 0.47	96	76	NA	No	NTX
	34465-46-8	Total HXCDD	1.33	67.4	NG/KG	IOA-SS-EU43-0002	15/17	0.493 - 0.59	67.4	110	NA	No	NTX
	55684-94-1	Total HXCDF	0.431 J	169 J	NG/KG	IOA-SS-EU09-0002	16/17	0.67 - 0.67	169	390	NA	No	NTX
	36088-22-9	Total PECDD	0.34	15.4	NG/KG	IOA-SS-EU43-0002	14/17	0.247 - 2.3	15.4	75	NA	No	NTX
	30402-15-4	Total PECDF	0.664 J	225	NG/KG	IOA-SS-EU09-0002	16/17	1.3 - 1.3	225	560	NA	No	NTX
	41903-57-5	Total TCDD	0.36 J	18	NG/KG	SB06-343-NSO-072503	14/17	0.197 - 0.32	18	42	NA	No	NTX
	55722-27-5	Total TCDF	0.922 J	97	NG/KG	SB06-343-NSO-072503	17/17	-	97	930	NA	No	NTX

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NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth surface soil background concentrations (Stone and Webster, 2002).
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. Soil screening levels (SSLs) for groundwater protection are risk-based SSLs and are based on a dilution attenuation factor (DAF) of 1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - The value for acenaphthene is used as a surrogate for acenaphthylene.
8 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
9 - The value is for chlordane.
10 - The value for endosulfan is used as a surrogate for endosulfan II and endosulfan sulfate.
11 - The value for endrin is used as a surrogate for endrin aldehyde and endrin ketone.
12 - The value is for polychlorinated biphenyls (low risk).
13 - The value is for hexavalent chromium.
14 - The Maximum Contaminant Level (MCL)-based SSL is presented.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above screening level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

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Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Associated Samples:													
IOA-SS-EU01-0002		IOA-SS-EU10-0002		IOA-SS-EU21-0002		IOA-SS-EU29-0002-D		IOA-SS-EU46-0002-D					
IOA-SS-EU01-0002-D		SB11-201-NSO-0515010		SB09008-NSO-121698-0		IOA-SS-EU30-0002		IOA-SS-EU47-0002					
IOA-SS-EU02-0002		IOA-SS-EU12-0002		IOA-SS-EU22-0002		IOA-SS-EU31-0002		IOA-SS-EU48-0002					
IOA-SS-EU03-0002		IOA-SS-EU13-0002		SB09009-NSO-121698-0		IOA-SS-EU32-0002		IOA-SS-EU49-0002					
IOA-SS-EU04-0002		IOA-SS-EU14-0002		IOA-SS-EU23-0002		IOA-SS-EU32-0002-D							
B116-OSB1AA		SB07-312-NSO-1104020		SB06-343-NSO-072503		IOA-SS-EU33-0002							
B116-OSB1AA-D		IOA-SS-EU15-0002		B8-8SB2AA		IOA-SS-EU34-0002							
B116-OSB2AA		IOA-SS-EU15-0002-D		B8-8SB3AA		IOA-SS-EU35-0002							
B116-OSB3AA		SB07-305-NSO-1104025		B8-8SB4AA		IOA-SS-EU36-0002							
B116-OSB4AA		SB07-305-NSO-1104020		SB06010-NSO-120998-0		IOA-SS-EU37-0002							
B116-OSB4AA-D		SB07-305-NSO-1104020-D		SB06011-NSO-120998-0		MW06013-NSO-112498-0							
B14SB09AA		SB07-306-NSO-1104025		SB06-304-NSO-0716030		SB06008-NSO-120898-0							
IOA-SS-EU06-0002		SB07-306-NSO-1104020		B8-8SB5AA		SB06008-NSO-120898-0-D							
IOA-SS-EU07-0002		SB07-311-NSO-1104020		B8-8SB6AA		SB06009-NSO-120898-0							
SB07-339-NSO-101503		SB07-326-NSO-0716031		IOA-SS-EU27-0002		SB06-351-NSO-072503							
SB07-307-NSO-1104025		SB07-326-NSO-0716032		S1SWE		IOA-SS-EU38-0002							
SB07-307-NSO-1104020		SB07-327-NSO-0716031		S1SWN		SB06006-NSO-120898-0							
SB07-308-NSO-1104025		SB07-327-NSO-0716032		S1SWW		SB06007-NSO-120898-0							
SB07-308-NSO-1104020		SB07-328-NSO-0716030		S2SWE		SB06012-NSO-120998-0							
SB07-309-NSO-1104025		SB07-328-NSO-0716031		S2SWE-D		IOA-SS-EU39-0002							
SB07-309-NSO-1104020		SB07-329-NSO-0716030		S2SWN		SB06004-NSO-120898-0							
SB07-310-NSO-0716030		SB07-329-NSO-0716031		S2SWW		SB06005-NSO-120898-0							
SB07-310-NSO-1104020		SB07-336-NSO-101503		NAS-AOC13-SW01		SS06-020-NSO-102798							
SB07-330-NSO-0716030		SB07-337-NSO-101503		NAS-AOC13-SW01-D		SS06-020-NSO-102798-D							
SB07-330-NSO-0716031		SB07-338-NSO-101503		NAS-AOC13-SW02		IOA-SS-EU40-0002							
SB07-331-NSO-0716030		IOA-SS-EU16-0002		NAS-AOC13-SW03		IOA-SS-EU41-0002							
SB07-331-NSO-0716031		IOA-SS-EU17-0002		NAS-AOC13-SW04		IOA-SS-EU42-0002							
SB07-340-NSO-101503		MW11131-NSO-122198-0		IOA-SS-EU28-0002		IOA-SS-EU43-0002							
IOA-SS-EU09-0002		SB11-205-NSO-0515010		SB06001-NSO-120898-0		IOA-SS-EU44-0002							
B116-OSB5AA		IOA-SS-EU19-0002		SB06002-NSO-120898-0		IOA-SS-EU45-0002							
B14SB08AA		SB09007-NSO-121698-0		IOA-SS-EU29-0002		IOA-SS-EU46-0002							

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	71-55-6	1,1,1-Trichloroethane	4 J	4 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	4	NA	870000 N	No	BSL
	75-34-3	1,1-Dichloroethane	3 J	3 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	3	NA	3300 C	No	BSL
	79-01-6	Trichloroethene	7 J	7 J	UG/KG	IOA-SO-RIA33-SB10-0305	1/5	0.36 - 0.48	7	NA	440 N[7]	No	BSL
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7 J	33 J	UG/KG	IOA-SO-RIA33-SB10-0305	3/9	17 - 20	33	NA	23000 N	No	BSL
	83-32-9	Acenaphthene	19 J	73 J	UG/KG	IOA-SO-RIA33-SB02-0507	2/9	17 - 20	73	NA	340000 N	No	BSL
	208-96-8	Acenaphthylene	11 J	55 J	UG/KG	IOA-SO-RIA33-SB02-0507	2/9	17 - 20	55	NA	340000 N[8]	No	BSL
	120-12-7	Anthracene	29 J	150 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	150	NA	1700000 N	No	BSL
	--	Bap Equivalent-Halfnd	30.6 J	584 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	584	NA	15 C	Yes	ASL
	--	Bap Equivalent-Pos	11.8 J	584 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	584	NA	15 C	Yes	ASL
	56-55-3	Benzo(a)anthracene	15 J	520 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	520	600	150 C	No	BKG
	50-32-8	Benzo(a)pyrene	9 J	380 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	380	16	15 C	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	13 J	650 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	650	810	150 C	No	BKG
	191-24-2	Benzo(g,h,i)perylene	47 J	230 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	230	330	170000 N[9]	No	BSL, BKG
	207-08-9	Benzo(k)fluoranthene	52 J	250 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	10 - 20	250	320	1500 C	No	BSL, BKG
	218-01-9	Chrysene	13 J	550 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	550	710	15000 C	No	BSL, BKG
	53-70-3	Dibenzo(a,h)anthracene	64 J	64 J	UG/KG	IOA-SO-RIA33-SB02-0507	1/9	26 - 40	64	1.7	15 C	Yes	ASL
	206-44-0	Fluoranthene	24 J	870 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	870	1100	230000 N	No	BSL, BKG
	86-73-7	Fluorene	11 J	89 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	89	NA	230000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	40 J	200 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	34 - 40	200	390	150 C	No	BKG
	91-20-3	Naphthalene	11 J	33 J	UG/KG	IOA-SO-RIA33-SB02-0507	3/9	17 - 20	33	NA	3600 C	No	BSL
	85-01-8	Phenanthrene	11 J	610 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	610	360	170000 N[9]	No	BSL
	129-00-0	Pyrene	20 J	910 J	UG/KG	IOA-SO-RIA33-SB02-0507	4/9	17 - 20	910	1000	170000 N	No	BSL, BKG
	METALS												
	7429-90-5	Aluminum	3600	7900	MG/KG	IOA-SO-RIA33-SB14-0507	9/9	-	7900	8520	7700 N	No	BKG
	7440-36-0	Antimony	0.3	0.53	MG/KG	IOA-SO-RIA33-SB14-0507	2/9	0.056 - 0.13	0.53	3.65	3.1 N	No	BSL, BKG
	7440-38-2	Arsenic	0.13 J	2.3	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	2.3	1.9	0.39 C	Yes	ASL
	7440-39-3	Barium	7.8	17	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	17	27.0	1500 N	No	BSL, BKG
	7440-41-7	Beryllium	0.26 J	0.54	MG/KG	IOA-SO-RIA33-SB08-0305	7/9	0.17 - 0.26	0.54	0.44	16 N	No	BSL
	7440-43-9	Cadmium	0.14	0.28	MG/KG	IOA-SO-RIA33-SB10-0305	7/9	0.083 - 0.11	0.28	0.115	7 N	No	BSL
	7440-70-2	Calcium	820	1700	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	1700	1550	NA	No	NUT
	18540-29-9	Chromium	4.7	11	MG/KG	IOA-SO-RIA33-SB04-0305	9/9	-	11	10.2	0.29 C[10]	Yes	ASL
	7440-48-4	Cobalt	1.9	6.8	MG/KG	IOA-SO-RIA33-SB14-0507	9/9	-	6.8	4.7	2.3 N	Yes	ASL
	7440-50-8	Copper	3.6	12	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	12	14.2	310 N	No	BSL, BKG
	7439-89-6	Iron	4900	18000	MG/KG	IOA-SO-RIA33-SB08-0305	9/9	-	18000	11,400	5500 N	Yes	ASL

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	Adjusted USEPA RSL - Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**METALS (continued)**												
	7439-92-1	Lead	2.6	20	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	20	9.3	400	No	BSL
	7439-95-4	Magnesium	1100	2400	MG/KG	IOA-SO-RIA33-SB04-0305, IOA-SO-RIA33-SB14-0507	9/9	-	2400	2250	NA	No	NUT
	7439-96-5	Manganese	65 J	320 J	MG/KG	IOA-SO-RIA33-SB14-0507, IOA-SO-RIA33-SB14-0507-D	9/9	-	320	413	180 N	No	BKG
	7439-97-6	Mercury	0.002 J	0.018 J	MG/KG	IOA-SO-RIA33-SB02-0507	5/9	0.01 - 0.013	0.018	0.11	2.3 N[11]	No	BSL, BKG
	7440-02-0	Nickel	3.8	8.9	MG/KG	IOA-SO-RIA33-SB10-0305, IOA-SO-RIA33-SB14-0507	9/9	-	8.9	6.5	150 N	No	BSL
	7440-09-7	Potassium	250 J	440 J	MG/KG	IOA-SO-RIA33-SB04-0305	9/9	-	440	457	NA	No	NUT, BKG
	7440-23-5	Sodium	36 J	58 J	MG/KG	IOA-SO-RIA33-SB10-0305	9/9	-	58	144	NA	No	NUT, BKG
	7440-28-0	Thallium	0.09 J	0.09 J	MG/KG	IOA-SO-RIA33-SB10-0305	1/9	0.065 - 0.091	0.09	0.22	0.078 N	No	BKG
	7440-62-2	Vanadium	8.5	20	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	20	17.1	39 N	No	BSL
	7440-66-6	Zinc	17	42	MG/KG	IOA-SO-RIA33-SB02-0507	9/9	-	42	28.7	2300 N	No	BSL

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth subsurface soil background concentrations (Stone and Webster, 2002).
5 - United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012. Values correspond to a cancer risk level of 1E-06 or an adjusted hazard quotient (HQ) of 0.1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - One-tenth the noncarcinogenic level is less than the carcinogenic level; therefore, the noncarcinogenic screening level is presented.
8 - The value for acenaphthene is used as a surrogate for acenaphthylene.
9 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
10 - The value is for hexavalent chromium.
11 - The value is for mercuric chloride (and other mercury salts).

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:
IOA-SO-RIA33-SB02-0507
IOA-SO-RIA33-SB04-0305
IOA-SO-RIA33-SB08-0305
IOA-SO-RIA33-SB10-0305
IOA-SO-RIA33-SB14-0507
IOA-SO-RIA33-SB14-0507-D
IOA-SO-RIA82-01A-0608
IOA-SO-RIA82-02A-0608
IOA-SO-RIA82-03A-0608
IOA-SO-RIA82-04A-0608

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
PAH = Polycyclic aromatic hydrocarbon

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and background

For elimination as a COPC:
BKG = Less than Background Concentration (for PAHs and metals)
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	**VOLATILES**												
	71-55-6	1,1,1-Trichloroethane	4 J	4 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	4	NA	2600	No	BSL
	75-34-3	1,1-Dichloroethane	3 J	3 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	3	NA	0.68	Yes	ASL
	79-01-6	Trichloroethene	7 J	7 J	UG/KG	IOA-RIA33-SB10	1/5	0.36 - 0.48	7	NA	0.16	Yes	ASL
	SEMIVOLATILES												
	91-57-6	2-Methylnaphthalene	7 J	33 J	UG/KG	IOA-RIA33-SB10	3/9	17 - 20	33	NA	140	No	BSL
	83-32-9	Acenaphthene	19 J	73 J	UG/KG	IOA-RIA33-SB02	2/9	17 - 20	73	NA	4100	No	BSL
	208-96-8	Acenaphthylene	11 J	55 J	UG/KG	IOA-RIA33-SB02	2/9	17 - 20	55	NA	4100 [7]	No	BSL
	120-12-7	Anthracene	29 J	150 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	150	NA	42000	No	BSL
	--	Bap Equivalent-Halfnd	30.6 J	584 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	584	NA	NA	No	BSL
	--	Bap Equivalent-Pos	11.8 J	584 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	584	NA	NA	No	BSL
	56-55-3	Benzo(a)anthracene	15 J	520 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	520	600	10	No	BKG
	50-32-8	Benzo(a)pyrene	9 J	380 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	380	16	3.5	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	13 J	650 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	650	810	35	No	BKG
	191-24-2	Benzo(g,h,i)perylene	47 J	230 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	230	330	9500 [8]	No	BSL, BKG
	207-08-9	Benzo(k)fluoranthene	52 J	250 J	UG/KG	IOA-RIA33-SB02	3/9	10 - 20	250	320	350	No	BSL, BKG
	218-01-9	Chrysene	13 J	550 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	550	710	1100	No	BSL, BKG
	53-70-3	Dibenzo(a,h)anthracene	64 J	64 J	UG/KG	IOA-RIA33-SB02	1/9	26 - 40	64	1.7	11	Yes	ASL
	206-44-0	Fluoranthene	24 J	870 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	870	1100	70000	No	BSL, BKG
	86-73-7	Fluorene	11 J	89 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	89	NA	4000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	40 J	200 J	UG/KG	IOA-RIA33-SB02	3/9	34 - 40	200	390	200	No	BSL, BKG
	91-20-3	Naphthalene	11 J	33 J	UG/KG	IOA-RIA33-SB02	3/9	17 - 20	33	NA	0.47	Yes	ASL
	85-01-8	Phenanthrene	11 J	610 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	610	360	9500 [8]	No	BSL
	129-00-0	Pyrene	20 J	910 J	UG/KG	IOA-RIA33-SB02	4/9	17 - 20	910	1000	9500	No	BSL, BKG
	METALS												
	7429-90-5	Aluminum	3600	7900	MG/KG	IOA-RIA33-SB14	9/9	-	7900	8520	23000	No	BSL, BKG
	7440-36-0	Antimony	0.3	0.53	MG/KG	IOA-RIA33-SB14	2/9	0.056 - 0.13	0.53	3.65	0.27	No	BKG
	7440-38-2	Arsenic	0.13 J	2.3	MG/KG	IOA-RIA33-SB10	9/9	-	2.3	1.9	0.0013	Yes	ASL
	7440-39-3	Barium	7.8	17	MG/KG	IOA-RIA33-SB10	9/9	-	17	27.0	120	No	BSL, BKG
	7440-41-7	Beryllium	0.26 J	0.54	MG/KG	IOA-RIA33-SB08	7/9	0.17 - 0.26	0.54	0.44	13	No	BSL
	7440-43-9	Cadmium	0.14	0.28	MG/KG	IOA-RIA33-SB10	7/9	0.083 - 0.11	0.28	0.115	0.52	No	BSL
	7440-70-2	Calcium	820	1700	MG/KG	IOA-RIA33-SB10	9/9	-	1700	1550	NA	No	NUT
	18540-29-9	Chromium	4.7	11	MG/KG	IOA-RIA33-SB04	9/9	-	11	10.2	0.00059 [9]	Yes	ASL
	7440-48-4	Cobalt	1.9	6.8	MG/KG	IOA-RIA33-SB14	9/9	-	6.8	4.7	0.21	Yes	ASL
	7440-50-8	Copper	3.6	12	MG/KG	IOA-RIA33-SB10	9/9	-	12	14.2	22	No	BSL, BKG
	7439-89-6	Iron	4900	18000	MG/KG	IOA-RIA33-SB08	9/9	-	18000	11,400	270	Yes	ASL

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	USEPA Groundwater Protection SSL[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
IOA	METALS (continued)												
	7439-92-1	Lead	2.6	20	MG/KG	IOA-RIA33-SB02	9/9	-	20	9.3	14 [10]	Yes	ASL
	7439-95-4	Magnesium	1100	2400	MG/KG	IOA-RIA33-SB04, IOA-RIA33-SB14	9/9	-	2400	2250	NA	No	NUT
	7439-96-5	Manganese	65 J	320 J	MG/KG	IOA-RIA33-SB14, IOA-RIA33-SB14	9/9	-	320	413	21	No	BKG
	7439-97-6	Mercury	0.002 J	0.018 J	MG/KG	IOA-RIA33-SB02	5/9	0.01 - 0.013	0.018	0.11	0.033	No	BSL, BKG
	7440-02-0	Nickel	3.8	8.9	MG/KG	IOA-RIA33-SB10, IOA-RIA33-SB14	9/9	-	8.9	6.5	20	No	BSL
	7440-09-7	Potassium	250 J	440 J	MG/KG	IOA-RIA33-SB04	9/9	-	440	457	NA	No	NUT, BKG
	7440-23-5	Sodium	36 J	58 J	MG/KG	IOA-RIA33-SB10	9/9	-	58	144	NA	No	NUT, BKG
	7440-28-0	Thallium	0.09 J	0.09 J	MG/KG	IOA-RIA33-SB10	1/9	0.065 - 0.091	0.09	0.22	0.011	No	BKG
	7440-62-2	Vanadium	8.5	20	MG/KG	IOA-RIA33-SB02	9/9	-	20	17.1	78	No	BSL
	7440-66-6	Zinc	17	42	MG/KG	IOA-RIA33-SB02	9/9	-	42	28.7	290	No	BSL

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth subsurface soil background concentrations (Stone and Webster, 2002).
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2012.
Soil screening levels (SSLs) for groundwater protection are risk-based SSLs and are based on a dilution attenuation factor (DAF) of 1.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and, for PAHs and metals, is greater than the background value.
7 - The value for acenaphthene is used as a surrogate for acenaphthylene.
8 - The value for pyrene is used as a surrogate for benzo(g,h,i)perylene and phenanthrene.
9 - The value is for hexavalent chromium.
10 - The Maximum Contaminant Level (MCL)-based SSL is presented.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples:

IOA-RIA33-SB02	IOA-RIA82-SB02A
IOA-RIA33-SB04	IOA-RIA82-SB03A
IOA-RIA33-SB08	IOA-RIA82-SB04A
IOA-RIA33-SB10	
IOA-RIA33-SB14	
IOA-RIA33-SB14	
IOA-RIA33-SB14	
IOA-RIA82-SB01A	

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above screening level and background

For elimination as a COPC:
BKG = Less than background concentration (for PAHs and metals)
BSL = Below screening level
NUT = Essential nutrient

RAGS Part D Table 3

Medium-Specific Exposure Point Concentration Summary

LIST OF TABLES
RAGS PART D TABLE 3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Table No.	Reasonable Maximum Exposures
3.1.RME	Surface Soil - High Concentrations Area
3.2.RME	Surface Soil - Low Concentrations Area
3.3.RME	Subsurface Soil

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil - Higher Concentrations EUs
Exposure Medium: Surface Soil - Higher Concentrations EUs

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	2.1	3.8 (G)	15.6 J	3.8	mg/kg	95% KM (BCA) UCL	ProUCL 4.1.01
	Aroclor-1260	mg/kg	NA[1]	NA[1]	0.063	0.063	mg/kg	Maximum Detected Concentration	(1)
	Heptachlor Epoxide	mg/kg	0.047	0.16 (G)	0.20 J	0.160	mg/kg	95% KM (Chebyshev) UCL	ProUCL 4.1.01
	2,3,7,8-TCDD Equivalents	mg/kg	NA[2]	NA[2]	0.0000092 J	0.0000092	mg/kg	Maximum Detected Concentration	(2)
	Aluminum	mg/kg	6800	8000 (N)	10000	8000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Arsenic	mg/kg	5.3	7.1 (N)	10.4	7.1	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	27.3	93.8 (NP)	149	93.8	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.6	4.2 (N)	5.9	4.2	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Iron	mg/kg	13000	15000 (N)	21000	15000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Lead	mg/kg	240	600 (G)	1280	240	mg/kg	Arithmetic Mean Concentration	ProUCL 4.1.01
	Manganese	mg/kg	180	220 (N)	294	220	mg/kg	95% Student's-t UCL	ProUCL 4.1.01

1 - There are less than four detected concentrations. Reliable statistics cannot be computed. The maximum concentration was used as the EPC.
2 - There are less than five samples. Reliable statistics cannot be computed. The Maximum concentration was used as the EPC.
3 - The mean concentration is used as the exposure point concentration for lead.

EU = Exposure unit
G = Gamma
IOA = Industrial Operations Area
mg/kg = milligram per kilogram
N = Normal
NA = Not applicable.
NP = Non-parametric
UCL = Upper confidence limit

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil - Lower Concentrations EUs
Exposure Medium: Surface Soil - Lower Concentrations EUs

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	0.20	0.21 (L)	0.893 J	0.21	mg/kg	95% KM (BCA) UCL	ProUCL 4.1.01
	Aroclor-1260	mg/kg	0.40	1.5 (L)	12	1.5	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL 4.1.01
	Heptachlor Epoxide	mg/kg	0.0031	0.0067 (N)	0.012 J	0.0067	mg/kg	95% KM (t) UCL	ProUCL 4.1.01
	2,3,7,8-TCDD Equivalents	mg/kg	0.0000050	0.0000080 (G)	0.0000152 J	0.0000080	mg/kg	95% Approximate Gamma UCL	ProUCL 4.1.01
	Aluminum	mg/kg	6900	7300 (N)	13000	7300	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Arsenic	mg/kg	3.2	6.2 (NP)	36	6.2	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	9.2	9.9 (N)	17	9.9	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.7	4.1 (N)	7.4	4.1	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL 4.1.01
	Iron	mg/kg	13000	15000 (NP)	45000	15000	mg/kg	95% Modified-t UCL	ProUCL 4.1.01
	Lead	mg/kg	24	49 (NP)	320	24	mg/kg	Arithmetic Mean Concentration	ProUCL 4.1.01
	Manganese	mg/kg	210	240 (G)	440 J	240	mg/kg	95% Approximate Gamma UCL	ProUCL 4.1.01

EU = Exposure unit
G = Gamma
IOA = Industrial Operations Area
L = Lognormal
mg/kg = milligram per kilogram
N = Normal
NP = Non-parametric
UCL = Upper confidence limit

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil - Entire Site
Exposure Medium: Subsurface Soil - Entire Site

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	0.116	0.253 (N)	0.584 J	0.253	mg/kg	95% KM (t) UCL	ProUCL 4.1.01
	Arsenic	mg/kg	1.1	1.7 (N)	2.3	1.7	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	7.8	9.2 (N)	11	9.2	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.7	4.7 (N)	6.8	4.7	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Iron	mg/kg	10000	13000 (N)	18000	13000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01

EU = Exposure unit
IOA = Industrial Operations Area
mg/kg = milligram per kilogram
N = Normal
UCL = Upper confidence limit

RAGS Part D Table 4

Values Used For Daily Intake Calculations

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TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD COMMERCIAL RECEPTORS - SOILS
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Receptor	Child	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(2)	BW x AT
				EF	Exposure Frequency	150	days/year	(3)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Commercial Receptor	Child	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	150	days/year	(3)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

2 - Commercial receptors are assumed to visit facility/open spaces only for a portion of the day.

3 - Commercial receptors are assumed to visit facility/open spaces approximately three times per week.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 2.35E-07 Cancer Dermal Intake (Age 0 - 6) = 1.32E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 7.83E-08 Cancer Dermal Intake (Age 0 - 2) = 4.38E-07

Cancer Ingestion Intake (Age 2 - 6) = 1.57E-07 Cancer Dermal Intake (Age 2 - 6) = 8.77E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.74E-06 Noncancer Dermal Intake = 1.53E-05

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD COMMERCIAL RECEPTORS - SOILS TO AIR

NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Receptor	Child	IOA	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(2)	CA x ET x EF x ED
				EF	Exposure Frequency	150	days/year	(3)	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2011	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

2 - Professional judgment.

3 - Commercial receptors are assumed to visit facility/open spaces approximately three times per week.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2011: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 5.87E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 1.37E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 1.96E-03

Cancer Inhalation Intake (Age 2 - 6) = 3.91E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT COMMERCIAL RECEPTORS - SOILS
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Commercial Receptor	Adult	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(2)	BW x AT
				EF	Exposure Frequency	150	days/year	(3)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Commercial Receptor	Adult	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	150	days/year	(3)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

2 - Commercial receptors are assumed to visit facility/open spaces only for a portion of the day.

3 - Commercial receptors are assumed to visit facility/open spaces approximately three times per week.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 1.01E-07 Cancer Dermal Intake (Age 6 - 30) = 8.03E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 4.19E-08 Cancer Dermal Intake (Age 6 - 16) = 3.35E-07

Cancer Ingestion Intake (Age 16 - 30) = 5.87E-08 Cancer Dermal Intake (Age 16 - 30) = 4.68E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.94E-07 Noncancer Dermal Intake = 2.34E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.4.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT COMMERCIAL RECEPTORS - SOILS TO AIR

NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Commercial Receptor	Adult	IOA	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(2)	$\frac{CA \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	150	days/year	(3)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2011	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

2 - Professional judgment.

3 - Commercial receptors are assumed to visit facility/open spaces approximately three times per week.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2011: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 2.35E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 6.85E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 9.78E-03

Cancer Inhalation Intake (Age 16 - 30) = 1.37E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - SOILS
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Resident	Child	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 1.10E-06 Cancer Dermal Intake (Age 0 - 6) = 3.07E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.65E-07 Cancer Dermal Intake (Age 0 - 2) = 1.02E-06

Cancer Ingestion Intake (Age 2 - 6) = 7.31E-07 Cancer Dermal Intake (Age 2 - 6) = 2.05E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 3.58E-05

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS SOILS TO AIR
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	IOA	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	$\frac{CA \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA, 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2011	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidence- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2011: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 8.22E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 1.92E+00

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 2.74E-02

Cancer Inhalation Intake (Age 2 - 6) = 5.48E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	IOA	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 4.70E-07 Cancer Dermal Intake (Age 6 - 30) = 1.87E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.96E-07 Cancer Dermal Intake (Age 6 - 16) = 7.81E-07

Cancer Ingestion Intake (Age 16 - 30) = 2.74E-07 Cancer Dermal Intake (Age 16 - 30) = 1.09E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.37E-06 Noncancer Dermal Intake = 5.47E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.8.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS TO AIR

NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	IOA	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	$\frac{CA \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$
				EF	Exposure Frequency	350	days/year	USEPA, 2002a	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.10E+10	m3/kg	USEPA 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	73.95045	g/m2-s per kg/m3	USEPA 2011	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2011: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 3.29E-01

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 9.59E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.37E-01

Cancer Inhalation Intake (Age 16 - 30) = 1.92E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

RAGS Part D Table 5

Non-Cancer Toxicity Data

LIST OF TABLES
RAGS PART D TABLE 5
NON-CANCER TOXICITY DATA

Table No.

5.1 Non-Cancer Toxicity Data - Oral/Dermal
5.2 Non-Cancer Toxicity Data - Inhalation

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD: Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
PAHs										
Benzo(a)pyrene Equivalents	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs										
Aroclor-1260[3]	Chronic	2.00E-05	mg/kg/day	1	2.0E-05	mg/kg/day	Immune	300/1	IRIS	3/13/2013
Heptachlor Epoxide	Chronic	1.30E-05	mg/kg/day	1	1.3E-05	mg/kg/day	Liver	1000/1	IRIS	3/13/2013
Dioxins/Furans										
2,3,7,8-TCDD Equivalents	Subchronic	2.0E-08	mg/kg/day	1	2.0E-08	mg/kg/day	Developmental	30/1	ATSDR	12/1998
	Chronic	7.00E-10	mg/kg/day	1	7.0E-10	mg/kg/day	Reproductive	30/1	IRIS	3/13/2013
Inorganics										
Aluminum	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	CNS	100/1	PPRTV	10/23/2006
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, CVS	3/1	IRIS	3/13/2013
Chromium[4]	Subchronic	2.0E-02	mg/kg/day	0.025	5.0E-04	mg/kg/day	None Specified	100/3	HEAST	9/1997
	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	None Specified	300/3	IRIS	3/13/2013
Cobalt	Subchronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Thyroid	NA	PPRTV	8/25/2008
	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Thyroid	NA	PPRTV	8/25/2008
Iron	Subchronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	GS	1.5	PPRTV	9/11/2006
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese[5]	Chronic	2.4E-02	mg/kg/day	0.04	9.6E-04	mg/kg/day	CNS	1	IRIS	3/13/2013

Notes:
1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.
3 - Value is for Aroclor-1254.
4 - Value is for hexavalent chromium.
5 - Adjusted IRIS value in accordance with IRIS.

Definitions:
ATSDR = Agency for Toxic Substances and Disease Registry
CNS = Central nervous system
CVS = Cardiovascular system
GS = Gastrointestinal system
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
NA = Not available
PAHs = Polycyclic aromatic hydrocarbon
PPRTV = Provisional Peer Reviewed Toxicity Value
RfD = Reference dose

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC: Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
PAHs									
Benzo(a)pyrene Equivalents	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs									
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans									
2,3,7,8-TCDD Equivalents	Chronic	4.0E-08	mg/m^3	1.1E-08	(mg/kg/day)	Developmental	NA	Cal EPA	9/2009
Inorganics									
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	(mg/kg/day)	CNS	300/1	PPRTV	10/23/2006
Arsenic	Chronic	1.5E-05	mg/m^3	4.3E-06	(mg/kg/day)	NA	NA	Cal EPA	9/2009
Chromium[2]	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	3/13/2013
	Subchronic	2.0E-05	mg/m^3	5.7E-06	(mg/kg/day)	Respiratory	NA	PPRTV	8/25/2008
Cobalt	Chronic	6.0E-06	mg/m^3	1.7E-06	(mg/kg/day)	Respiratory	NA	PPRTV	8/25/2008
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	(mg/kg/day)	CNS	1000/1	IRIS	3/13/2013

Notes:

1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg.

2 - Value is for hexavalent chromium.

Cal EPA = California Environmental Protection Agency
CNS = Central nervous system
IRIS = Integrated Risk Information System
NA = Not Applicable
PAH = Polycyclic aromatic hydrocarbon
PPRTV = Provisional Peer Reviewed Toxicity Value
RfC = Reference concentration
RfD = Reference dose

RAGS Part D Table 6

Cancer Toxicity Data

LIST OF TABLES
RAGS PART D TABLE 6
CANCER TOXICITY DATA

Table No.

6.1 Cancer Toxicity Data - Oral/Dermal
6.2 Cancer Toxicity Data - Inhalation

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
PAHs								
BAP Equivalents[3]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Pesticides/PCBs								
Aroclor-1260	2.0E+00	$(mg/kg/day)^{-1}$	1	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Heptachlor Epoxide	9.1E+00	$(mg/kg/day)^{-1}$	1	9.1E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	3/13/2013
Dioxins/Furans								
2,3,7,8-TCDD Equivalents	1.3E+05	$(mg/kg/day)^{-1}$	1	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	3/13/2013
Chromium[3][4]	5.0E-01	$(mg/kg/day)^{-1}$	0.025	2.0E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	NJDEP	4/8/2009
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	D (Not classifiable as to human carcinogenicity)	IRIS	3/13/2013

Notes:

1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral Absorption Efficiency for Dermal.

3 - Benzo(a)pyrene and related compounds and hexavalent chromium are considered to act via the mutagenic mode of action and were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

4 - Value is for hexavalent chromium.

Cal EPA = California Environmental Protection Agency.

CSF = Cancer slope factor.

IRIS = Integrated Risk Information System.

NA = Not Available.

NJDEP = New Jersey Department of Environmental Protection, Derivation of Ingestion-Based Soil Remediation Criterion for Cr+6 Based on the NTP Chronic Bioassay Data for Sodium Dichromate Dihydrate, April 8, 2009.

PAH = Polycyclic aromatic hydrocarbon.

USEPA(1) = Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993 EPA/600/R-93/089.

USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
PAHs							
Benzo(a)pyrene Equivalents[2]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	3/13/2013
Pesticides/PCBs							
Aroclor-1260	5.7E-04	$(ug/m^3)^{-1}$	2.0E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(2)	9/1996
Heptachlor Epoxide	2.6E-03	$(ug/m^3)^{-1}$	9.1E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	3/13/2013
Dioxins/Furans							
2,3,7,8-TCDD Equivalents	3.8E+01	$(ug/m^3)^{-1}$	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Inorganics							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	3/13/2013
Chromium[2][3]	8.4E-02	$(ug/m^3)^{-1}$	2.9E+02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	3/13/2013
Cobalt	9.0E-03	$(ug/m^3)^{-1}$	3.2E+01	$(mg/kg/day)^{-1}$	NA	PPRTV	8/25/2008
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	D / Not classifiable as to human carcinogenicity	IRIS	3/13/2013

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / $20m^3$/day.

2 - Benzo(a)pyrene and related compounds and hexavalent chromium are considered to act via the mutagenic mode of action and were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

3 - Value is for hexavalent chromium.

4 - USEPA(2) = USEPA, PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures, September 1996, EPA/600/P-96/001F.

Cal EPA = California Environmental Protection Agency.

CSF = Cancer slope factor.

IRIS = Integrated Risk Information System.

NA = Not Available.

PAHs = Polycylic aromatic hydrocarbons.

PPRTV = Provisional Peer Reviewed Toxicity Value.

RAGS Part D Table 7

Calculation of Cancer Risks and Non-Cancer Hazards

LIST OF TABLES
RAGS PART D TABLE 7
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

Table No.

REASONABLE MAXIMUM EXPOSURES

7.1.RME Child Commercial Receptors
7.2.RME Adult Commercial Receptors
7.3.RME Child Residents
7.4.RME Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	4.8E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-05	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.0E-08	1.7E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.009
				Heptachlor Epoxide	0.160	mg/kg	3.8E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	3.4E-07	4.4E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.03
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	2.2E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.8E-07	2.5E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.04
				Aluminum	8,000	mg/kg	1.9E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	7.10	mg/kg	1.7E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.5E-06	1.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Chromium VI	93.8	mg/kg	1.2E-04	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	5.9E-05	2.6E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.09
				Cobalt	4.20	mg/kg	9.9E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	15,000	mg/kg	3.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	240	mg/kg	5.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	5.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.0E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
			Exp. Route Total								9.7E-05					0.4
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	3.5E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.5E-05	7.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.2E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	2.3E-08	1.4E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.007
				Heptachlor Epoxide	0.160	mg/kg	2.1E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.9E-07	2.5E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.02
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	3.6E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.7E-08	4.2E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.006
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	2.8E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.2E-07	3.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								2.6E-05					0.04
		Exposure Point Total									1.2E-04					0.4
	Exposure Medium Total										1.2E-04					0.4
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.1E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.2E-11	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	3.4E-14	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.9E-14	3.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	8.5E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	2.2E-13	1.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	4.9E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.9E-13	5.7E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.4E-9
				Aluminum	7.3E-7	mg/m^3	4.3E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Arsenic	6.5E-10	mg/m^3	3.8E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.6E-11	4.4E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	8.5E-9	mg/m^3	2.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	2.2E-08	5.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000006
				Cobalt	3.8E-10	mg/m^3	2.2E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.0E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	8.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	1.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	1.2E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
			Exp. Route Total								2.2E-08					0.00005
		Exposure Point Total									2.2E-08					0.00005
	Exposure Medium Total										2.2E-08					0.00005
Medium Total											1.2E-04					0.4

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	2.6E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-06	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	3.5E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	7.0E-07	4.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.2
				Heptachlor Epoxide	0.007	mg/kg	1.6E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.4E-08	1.8E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.001
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	1.9E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.4E-07	2.2E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.03
				Aluminum	7,300	mg/kg	1.7E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.0E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	6.20	mg/kg	1.5E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-06	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Chromium VI	9.90	mg/kg	1.2E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	6.2E-06	2.7E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	4.10	mg/kg	9.6E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	15,000	mg/kg	3.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	24.0	mg/kg	5.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	5.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
			Exp. Route Total								1.1E-05					0.4
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.9E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-06	4.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	2.8E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.5E-07	3.2E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.2
				Heptachlor Epoxide	0.007	mg/kg	8.8E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	8.0E-09	1.0E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0008
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	3.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.1E-08	3.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.005
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	2.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	3.7E-07	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								2.4E-06					0.2
		Exposure Point Total									1.4E-05					0.6
	Exposure Medium Total										1.4E-05					0.6
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3		(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3		(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3		(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3		(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	--		(mg/m^3)	4.0E-08	(mg/m^3)	--
				Aluminum	6.6E-7	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	5.0E-03	(mg/m^3)	--
				Arsenic	5.6E-10	mg/m^3		(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	1.5E-05	(mg/m^3)	--
				Chromium VI	9.0E-10	mg/m^3		(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	--		(mg/m^3)	1.0E-04	(mg/m^3)	--
				Cobalt	3.7E-10	mg/m^3		(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	6.0E-06	(mg/m^3)	--
				Iron	1.4E-6	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	5.0E-05	(mg/m^3)	--
			Exp. Route Total								--					--
		Exposure Point Total									--					--
	Exposure Medium Total										--					--
Medium Total											1.4E-05					0.6

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	3.2E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.3E-06	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	4.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.0E-07	4.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium VI	9.20	mg/kg	1.2E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	5.8E-06	2.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.008
				Cobalt	4.70	mg/kg	1.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	13,000	mg/kg	3.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
			Exp. Route Total								8.7E-06					0.1
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	2.3E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-06	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	6.7E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.0E-07	7.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.8E-06					0.003
		Exposure Point Total									1.0E-05					0.1
	Exposure Medium Total										1.0E-05					0.1
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	7.2E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	7.9E-13	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Arsenic	1.5E-10	mg/m^3	9.1E-13	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.9E-12	1.1E-11	(mg/m^3)	1.5E-05	(mg/m^3)	7.1E-7
				Chromium VI	8.4E-10	mg/m^3	2.6E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	2.2E-09	5.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	5.7E-7
				Cobalt	4.3E-10	mg/m^3	2.5E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.3E-11	2.9E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000005
				Iron	1.2E-6	mg/m^3	6.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.1E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.2E-09					0.000006
		Exposure Point Total									2.2E-09					0.000006
	Exposure Medium Total										2.2E-09					0.000006
Medium Total											1.0E-05					0.1
										Total of Receptor Risks Across All Media	1.5E-04			Total of Receptor Hazards Across All Media		1.2

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	7.0E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.1E-06	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	6.3E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.3E-08	1.8E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.0009
				Heptachlor Epoxide	0.160	mg/kg	1.6E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.5E-07	4.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.004
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	9.3E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.2E-07	2.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.004
				Aluminum	8,000	mg/kg	8.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	7.10	mg/kg	7.1E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.1E-06	2.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.007
				Chromium VI	93.8	mg/kg	1.7E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	8.7E-06	2.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	4.20	mg/kg	4.2E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Iron	15,000	mg/kg	1.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.006
				Lead	240	mg/kg	2.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	2.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.5E-05	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.003
			Exp. Route Total								1.5E-05					0.04
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	7.3E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.3E-06	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	7.1E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-08	2.1E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.001
				Heptachlor Epoxide	0.160	mg/kg	1.3E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.2E-07	3.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.003
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	2.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.9E-08	6.5E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0009
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	1.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.6E-07	5.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								5.7E-06					0.007
		Exposure Point Total									2.1E-05					0.05
	Exposure Medium Total										2.1E-05					0.05
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.6E-11	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	1.3E-13	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	7.7E-14	3.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	3.4E-13	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	8.9E-13	1.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	2.0E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	7.5E-13	5.7E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.4E-9
				Aluminum	7.3E-7	mg/m^3	1.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Arsenic	6.5E-10	mg/m^3	1.5E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	6.5E-11	4.4E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	8.5E-9	mg/m^3	3.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-08	5.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000006
				Cobalt	3.8E-10	mg/m^3	9.0E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	8.1E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	3.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	5.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	4.7E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
			Exp. Route Total								3.1E-08					0.00005
		Exposure Point Total									3.1E-08					0.00005
	Exposure Medium Total										3.1E-08					0.00005
Medium Total											2.1E-05					0.05

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	3.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.8E-07	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.5E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.0E-07	4.4E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.007	mg/kg	6.7E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.1E-09	2.0E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0002
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	8.1E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.0E-07	2.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.003
				Aluminum	7,300	mg/kg	7.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	6.20	mg/kg	6.2E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	9.4E-07	1.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
				Chromium VI	9.90	mg/kg	1.8E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	9.1E-07	2.9E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0010
				Cobalt	4.10	mg/kg	4.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Iron	15,000	mg/kg	1.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.006
				Lead	24.0	mg/kg	2.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	2.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-05	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.003
			Exp. Route Total								2.5E-06					0.05
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	4.0E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.9E-07	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.7E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.4E-07	4.9E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.007	mg/kg	5.4E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	4.9E-09	1.6E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0001
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	1.9E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.5E-08	5.6E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0008
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	1.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-07	4.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								8.8E-07					0.03
		Exposure Point Total									3.4E-06					0.07
	Exposure Medium Total										3.4E-06					0.07
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	6.2E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.0E-13	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	3.2E-12	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.8E-12	9.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	1.4E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	3.7E-14	4.2E-14	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	1.7E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	6.5E-13	5.0E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.2E-9
				Aluminum	6.6E-7	mg/m^3	1.6E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.5E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000009
				Arsenic	5.6E-10	mg/m^3	1.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.7E-11	3.9E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	9.0E-10	mg/m^3	3.9E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.3E-09	6.2E-11	(mg/m^3)	1.0E-04	(mg/m^3)	6.2E-7
				Cobalt	3.7E-10	mg/m^3	8.8E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	7.9E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	3.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	5.1E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	5.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
			Exp. Route Total								3.4E-09					0.00005
		Exposure Point Total									3.4E-09					0.00005
	Exposure Medium Total										3.4E-09					0.00005
Medium Total											3.4E-06					0.07

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	4.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.4E-07	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	1.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.6E-07	5.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium VI	9.20	mg/kg	1.7E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	8.5E-07	2.7E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0009
				Cobalt	4.70	mg/kg	4.7E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.005
				Iron	13,000	mg/kg	1.3E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.005
			Exp. Route Total								1.4E-06					0.01
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	4.8E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-07	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	4.1E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.1E-08	1.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.1E-07					0.0004
		Exposure Point Total									1.9E-06					0.01
	Exposure Medium Total										1.9E-06					0.01
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	9.9E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-12	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Arsenic	1.5E-10	mg/m^3	3.6E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.6E-11	1.1E-11	(mg/m^3)	1.5E-05	(mg/m^3)	7.1E-7
				Chromium VI	8.4E-10	mg/m^3	3.6E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.0E-09	5.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	5.7E-7
				Cobalt	4.3E-10	mg/m^3	1.0E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	9.0E-11	2.9E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000005
				Iron	1.2E-6	mg/m^3	2.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.1E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-09					0.000006
		Exposure Point Total									3.1E-09					0.000006
	Exposure Medium Total										3.1E-09					0.000006
Medium Total											1.9E-06					0.01
										Total of Receptor Risks Across All Media	2.6E-05			Total of Receptor Hazards Across All Media		0.1

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	2.2E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-04	4.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	6.9E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-07	8.1E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.04
				Heptachlor Epoxide	0.160	mg/kg	1.8E-07	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.6E-06	2.0E-06	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.2
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	1.0E-11	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.3E-06	1.2E-10	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.2
				Aluminum	8,000	mg/kg	8.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.1
				Arsenic	7.10	mg/kg	7.8E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.2E-05	9.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Chromium VI	93.8	mg/kg	5.5E-04	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.7E-04	1.2E-03	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.4
				Cobalt	4.20	mg/kg	4.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	15,000	mg/kg	1.6E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.3
				Lead	240	mg/kg	2.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	2.4E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.8E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
			Exp. Route Total								4.5E-04					1.7
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	8.1E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.9E-05	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	2.7E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.4E-08	3.2E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.160	mg/kg	4.9E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	4.5E-07	5.7E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.04
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	8.5E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.1E-07	9.9E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	6.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	9.8E-07	7.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								6.1E-05					0.10
		Exposure Point Total									5.1E-04					1.8
	Exposure Medium Total										5.1E-04					1.8
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.7E-10	3.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	4.7E-13	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	2.7E-13	5.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	1.2E-12	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	3.1E-12	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	6.9E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.6E-12	8.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	2.0E-8
				Aluminum	7.3E-7	mg/m^3	6.0E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.0E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	6.5E-10	mg/m^3	5.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.3E-10	6.2E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	8.5E-9	mg/m^3	3.7E-09	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-07	8.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00008
				Cobalt	3.8E-10	mg/m^3	3.1E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.8E-10	3.7E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	1.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	1.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	1.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
			Exp. Route Total								3.1E-07					0.0007
		Exposure Point Total									3.1E-07					0.0007
	Exposure Medium Total										3.1E-07					0.0007
Medium Total											5.1E-04					1.8

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.2E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.0E-06	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.6E-06	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.3E-06	1.9E-05	(mg/kg/day)	2.0E-05	(mg/kg/day)	1.0
				Heptachlor Epoxide	0.007	mg/kg	7.3E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.7E-08	8.6E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.007
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	8.8E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.1E-06	1.0E-10	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.1
				Aluminum	7,300	mg/kg	8.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.3E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.09
				Arsenic	6.20	mg/kg	6.8E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.0E-05	7.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Chromium VI	9.90	mg/kg	5.6E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.9E-05	1.3E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.10	mg/kg	4.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	15,000	mg/kg	1.6E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.3
				Lead	24.0	mg/kg	2.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	2.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
			Exp. Route Total								5.3E-05					2.1
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	4.5E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-06	9.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	6.4E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.3E-06	7.5E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.4
				Heptachlor Epoxide	0.007	mg/kg	2.1E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.9E-08	2.4E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.002
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	7.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	9.6E-08	6.6E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	5.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.6E-07	6.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								5.5E-06					0.4
		Exposure Point Total									5.8E-05					2.5
	Exposure Medium Total										5.8E-05					2.5
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	8.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.2E-12	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	6.4E-12	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	5.0E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	1.3E-13	5.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	6.0E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.3E-12	7.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	1.7E-8
				Aluminum	6.6E-7	mg/m^3	5.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	5.6E-10	mg/m^3	4.6E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.0E-10	5.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	9.0E-10	mg/m^3	3.9E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.3E-08	8.6E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009
				Cobalt	3.7E-10	mg/m^3	3.1E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.8E-10	3.6E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	1.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	1.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
			Exp. Route Total								3.4E-08					0.0006
		Exposure Point Total									3.4E-08					0.0006
	Exposure Medium Total										3.4E-08					0.0006
Medium Total											5.8E-05					2.5

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	1.5E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-05	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	1.9E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.8E-06	2.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Chromium VI	9.20	mg/kg	5.4E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.7E-05	1.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.70	mg/kg	5.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	13,000	mg/kg	1.4E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
			Exp. Route Total								4.0E-05					0.5
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	5.4E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.9E-06	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	1.6E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.3E-07	1.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.2E-06					0.006
		Exposure Point Total									4.5E-05					0.6
	Exposure Medium Total										4.5E-05					0.6
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	1.0E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Arsenic	1.5E-10	mg/m^3	1.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.5E-11	1.5E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.000010
				Chromium VI	8.4E-10	mg/m^3	3.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-08	8.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000008
				Cobalt	4.3E-10	mg/m^3	3.5E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	3.2E-10	4.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00007
				Iron	1.2E-6	mg/m^3	9.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-08					0.00009
		Exposure Point Total									3.1E-08					0.00009
	Exposure Medium Total										3.1E-08					0.00009
Medium Total											4.5E-05					0.6
										Total of Receptor Risks Across All Media	6.1E-04			Total of Receptor Hazards Across All Media		4.9

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	3.3E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-05	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	3.0E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.9E-08	8.6E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.004
				Heptachlor Epoxide	0.160	mg/kg	7.5E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.8E-07	2.2E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.02
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	4.3E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.6E-07	1.3E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.02
				Aluminum	8,000	mg/kg	3.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Arsenic	7.10	mg/kg	3.3E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.0E-06	9.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	93.8	mg/kg	8.1E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.0E-05	1.3E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.20	mg/kg	2.0E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	15,000	mg/kg	7.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	240	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	1.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.0E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.01
			Exp. Route Total								7.1E-05					0.2
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	1.7E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-05	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.7E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.3E-08	4.8E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.002
				Heptachlor Epoxide	0.160	mg/kg	3.0E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	2.7E-07	8.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.007
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	5.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.7E-08	1.5E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	4.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.0E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								1.3E-05					0.02
		Exposure Point Total									8.4E-05					0.2
	Exposure Medium Total										8.4E-05					0.2
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	2.1E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.3E-10	3.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	1.9E-12	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.1E-12	5.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	4.8E-12	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	1.2E-11	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	2.7E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.0E-11	8.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	2.0E-8
				Aluminum	7.3E-7	mg/m^3	2.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.0E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	6.5E-10	mg/m^3	2.1E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	9.1E-10	6.2E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	8.5E-9	mg/m^3	5.1E-09	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.3E-07	8.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00008
				Cobalt	3.8E-10	mg/m^3	1.3E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.1E-09	3.7E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	4.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	7.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	6.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
			Exp. Route Total								4.3E-07					0.0007
		Exposure Point Total									4.3E-07					0.0007
	Exposure Medium Total										4.3E-07					0.0007
Medium Total											8.4E-05					0.2

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-06	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroctor-1260	1.50	mg/kg	7.0E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-06	2.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.1
				Heptachlor Epoxide	0.007	mg/kg	3.1E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	2.9E-08	9.2E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0007
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	3.8E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.9E-07	1.1E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.02
				Aluminum	7,300	mg/kg	3.4E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.010
				Arsenic	6.20	mg/kg	2.9E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.4E-06	8.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	9.90	mg/kg	8.5E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.3E-06	1.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Cobalt	4.10	mg/kg	1.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	15,000	mg/kg	7.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	24.0	mg/kg	1.1E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.01
			Exp. Route Total								1.2E-05					0.2
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	9.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.8E-07	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	3.9E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	7.9E-07	1.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.06
				Heptachlor Epoxide	0.007	mg/kg	1.3E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.1E-08	3.7E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0003
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	4.5E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.8E-08	1.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	3.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.2E-07	1.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
			Exp. Route Total								2.1E-06					0.06
		Exposure Point Total									1.4E-05					0.3
	Exposure Medium Total										1.4E-05					0.3
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	1.2E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.3E-11	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	4.5E-11	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	2.6E-11	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	2.0E-13	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	5.2E-13	5.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	2.4E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	9.1E-12	7.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	1.7E-8
				Aluminum	6.6E-7	mg/m^3	2.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	5.6E-10	mg/m^3	1.9E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	8.0E-10	5.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	9.0E-10	mg/m^3	5.4E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.6E-08	8.6E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009
				Cobalt	3.7E-10	mg/m^3	1.2E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.1E-09	3.6E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	4.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	7.2E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	7.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
			Exp. Route Total								4.8E-08					0.0006
		Exposure Point Total									4.8E-08					0.0006
	Exposure Medium Total										4.8E-08					0.0006
Medium Total											1.4E-05					0.3

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	2.2E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-06	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	8.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.2E-06	2.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Chromium VI	9.20	mg/kg	7.9E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.0E-06	1.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Cobalt	4.70	mg/kg	2.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	13,000	mg/kg	6.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
			Exp. Route Total								6.7E-06					0.06
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.2E-07	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	9.6E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.4E-07	2.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0009
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								9.7E-07					0.0009
		Exposure Point Total									7.7E-06					0.06
	Exposure Medium Total										7.7E-06					0.06
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	1.4E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Arsenic	1.5E-10	mg/m^3	5.1E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.2E-10	1.5E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.000010
				Chromium VI	8.4E-10	mg/m^3	5.0E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.2E-08	8.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000008
				Cobalt	4.3E-10	mg/m^3	1.4E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.3E-09	4.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00007
				Iron	1.2E-6	mg/m^3	3.9E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.4E-08					0.00009
		Exposure Point Total									4.4E-08					0.00009
	Exposure Medium Total										4.4E-08					0.00009
Medium Total											7.8E-06					0.06
										Total of Receptor Risks Across All Media	1.1E-04			Total of Receptor Hazards Across All Media		0.5

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

RAGS Part D Table 9

Summary of Receptor Risks and Hazards for COPCs

LIST OF TABLES
RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPC

Table No.

REASONABLE MAXIMUM EXPOSURES

9.1.RME Child Commercial Receptors
9.2.RME Adult Commercial Receptors
9.3.RME Lifelong Commercial Receptors
9.4.RME Child Residents
9.5.RME Adult Residents
9.6.RME Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	3E-05	--	3E-05	--	6E-05	NA	--	--	--	--
			Aroclor-1260	3E-08	--	2E-08	--	5E-08	Immune	0.009	--	0.007	0.02
			Heptachlor Epoxide	3E-07	--	2E-07	--	5E-07	Liver	0.03	--	0.02	0.05
			2,3,7,8-TCDD Equivalents	3E-07	--	5E-08	--	3E-07	Reproductive	0.04	--	0.006	0.04
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Arsenic	3E-06	--	4E-07	--	3E-06	Skin, CVS	0.06	--	0.01	0.08
			Chromium VI	6E-05	--	- -	--	6E-05	None Specified	0.09	--	--	0.09
			Cobalt	- -	--	- -	--	- -	Thyroid	0.04	--	--	0.04
			Iron	- -	--	- -	--	- -	GS	0.06	--	--	0.06
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Chemical Total	1E-04	--	3E-05	--	1E-04		0.4	--	0.04	0.4
		Exposure Point Total						1E-04					0.4
	Exposure Medium Total							1E-04					0.4
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aroclor-1260	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Heptachlor Epoxide	--	2E-13	--	--	2E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	2E-13	--	--	2E-13	Reproductive, Respir	--	1E-9	--	1E-9
			Aluminum	--	- -	--	--	- -	CNS	--	0.000010	--	0.000010
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	2E-08	--	--	2E-08	Respiratory	--	0.000006	--	0.000006
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Chemical Total	--	2E-08	--	--	2E-08		- -	0.00005	- -	0.00005
		Exposure Point Total						2E-08					0.00005
	Exposure Medium Total							2E-08					0.00005
Medium Total								1E-04					0.4

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Aroclor-1260	7E-07	--	6E-07	--	1E-06	Immune	0.2	--	0.2	0.4
			Heptachlor Epoxide	1E-08	--	8E-09	--	2E-08	Liver	0.001	--	0.0008	0.002
			2,3,7,8-TCDD Equivalents	2E-07	--	4E-08	--	3E-07	Reproductive	0.03	--	0.005	0.04
			Aluminum	--	--	--	--	--	CNS	0.02	--	--	0.02
			Arsenic	2E-06	--	4E-07	--	3E-06	Skin, CVS	0.06	--	0.010	0.07
			Chromium VI	6E-06	--	--	--	6E-06	None Specified	0.009	--	--	0.009
			Cobalt	--	--	--	--	--	Thyroid	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.06	--	--	0.06
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	0.03	--	--	0.03
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.4	--	0.2	0.6
		Exposure Point Total						1E-05					0.6
	Exposure Medium Total							1E-05					0.6
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	--	--	--	--	NA	--	--	--	--
			Aroclor-1260	--	--	--	--	--	NA	--	--	--	--
			Heptachlor Epoxide	--	--	--	--	--	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	--	--	--	--	Reproductive, Respir	--	--	--	--
			Aluminum	--	--	--	--	--	CNS	--	--	--	--
			Arsenic	--	--	--	--	--	NA	--	--	--	--
			Chromium VI	--	--	--	--	--	Respiratory	--	--	--	--
			Cobalt	--	--	--	--	--	Respiratory	--	--	--	--
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	--	--	--
			Chemical Total	--	--	--	--	--		--	--	--	--
		Exposure Point Total						--					--
	Exposure Medium Total							--					--
Medium Total								1E-05					0.6
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	2E-06	--	2E-06	--	4E-06	NA	--	--	--	--
			Arsenic	6E-07	--	1E-07	--	7E-07	Skin, CVS	0.02	--	0.003	0.02
			Chromium VI	6E-06	--	--	--	6E-06	None Specified	0.008	--	--	0.008
			Cobalt	--	--	--	--	--	Thyroid	0.04	--	--	0.04
			Iron	--	--	--	--	--	GS	0.05	--	--	0.05
			Chemical Total	9E-06	--	2E-06	--	1E-05		0.1	--	0.003	0.1
		Exposure Point Total						1E-05					0.1
	Exposure Medium Total							1E-05					0.1
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Arsenic	--	4E-12	--	--	4E-12	NA	--	0.0000007	--	0.0000007
			Chromium VI	--	2E-09	--	--	2E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000005	--	0.000005
			Iron	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	2E-09	--	--	2E-09		--	0.000006	--	0.000006
		Exposure Point Total						2E-09					0.000006
	Exposure Medium Total							2E-09					0.000006
Medium Total								1E-05					0.1
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	1

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.09
Total CVS HI	0.2
Total GS HI	0.2
Total Immune HI	0.4
Total Liver HI	0.05
Total Respiratory HI	0.00002
Total None Specified HI	0.1
Total Skin HI	0.2
Total Thyroid HI	0.1
Total Reproductive HI	0.08

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	5E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Aroclor-1260	1E-08	--	1E-08	--	3E-08	Immune	0.0009	--	0.001	0.002
			Heptachlor Epoxide	1E-07	--	1E-07	--	3E-07	Liver	0.004	--	0.003	0.006
			2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	1E-07	Reproductive	0.004	--	0.0009	0.005
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Arsenic	1E-06	--	3E-07	--	1E-06	Skin, CVS	0.007	--	0.002	0.009
			Chromium VI	9E-06	--	- -	--	9E-06	None Specified	0.009	--	--	0.009
			Cobalt	- -	--	- -	--	- -	Thyroid	0.004	--	--	0.004
			Iron	- -	--	- -	--	- -	GS	0.006	--	--	0.006
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Chemical Total	2E-05	--	6E-06	--	2E-05		0.04	--	0.007	0.05
		Exposure Point Total						2E-05					0.05
	Exposure Medium Total							2E-05					0.05
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Aroclor-1260	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Heptachlor Epoxide	--	9E-13	--	--	9E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	7E-13	--	--	7E-13	Reproductive, Respir	--	1E-9	--	1E-9
			Aluminum	--	- -	--	--	- -	CNS	--	0.000010	--	0.000010
			Arsenic	--	7E-11	--	--	7E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000006	--	0.000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.00005	- -	0.00005
		Exposure Point Total						3E-08					0.00005
	Exposure Medium Total							3E-08					0.00005
Medium Total								2E-05					0.05

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	3E-07	--	3E-07	--	6E-07	NA	--	--	--	--
			Aroclor-1260	3E-07	--	3E-07	--	6E-07	Immune	0.02	--	0.02	0.05
			Heptachlor Epoxide	6E-09	--	5E-09	--	1E-08	Liver	0.0002	--	0.0001	0.0003
			2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	1E-07	Reproductive	0.003	--	0.0008	0.004
			Aluminum	--	--	--	--	--	CNS	0.002	--	--	0.002
			Arsenic	9E-07	--	2E-07	--	1E-06	Skin, CVS	0.006	--	0.001	0.008
			Chromium VI	9E-07	--	--	--	9E-07	None Specified	0.0010	--	--	0.0010
			Cobalt	--	--	--	--	--	Thyroid	0.004	--	--	0.004
			Iron	--	--	--	--	--	GS	0.006	--	--	0.006
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	0.003	--	--	0.003
			Chemical Total	3E-06	--	9E-07	--	3E-06		0.05	--	0.03	0.07
		Exposure Point Total						3E-06					0.07
	Exposure Medium Total							3E-06					0.07
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Aroclor-1260	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	4E-14	--	--	4E-14	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	6E-13	--	--	6E-13	Reproductive, Respi	--	1E-9	--	1E-9
			Aluminum	--	--	--	--	--	CNS	--	0.000009	--	0.000009
			Arsenic	--	6E-11	--	--	6E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	3E-09	--	--	3E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	0.00003	--	0.00003
			Chemical Total	--	3E-09	--	--	3E-09		--	0.00005	--	0.00005
		Exposure Point Total						3E-09					0.00005
	Exposure Medium Total							3E-09					0.00005
Medium Total								3E-06					0.07
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	3E-07	--	4E-07	--	7E-07	NA	--	--	--	--
			Arsenic	3E-07	--	6E-08	--	3E-07	Skin, CVS	0.002	--	0.0004	0.002
			Chromium VI	8E-07	--	--	--	8E-07	None Specified	0.0009	--	--	0.0009
			Cobalt	--	--	--	--	--	Thyroid	0.005	--	--	0.005
			Iron	--	--	--	--	--	GS	0.005	--	--	0.005
			Chemical Total	1E-06	--	4E-07	--	2E-06		0.01	--	0.0004	0.01
		Exposure Point Total						2E-06					0.01
	Exposure Medium Total							2E-06					0.01
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.0000007	--	0.0000007
			Chromium VI	--	3E-09	--	--	3E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	9E-11	--	--	9E-11	Respiratory	--	0.000005	--	0.000005
			Iron	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		--	0.000006	--	0.000006
		Exposure Point Total						3E-09					0.000006
	Exposure Medium Total							3E-09					0.000006
Medium Total								2E-06					0.01
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	0.1

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.01
Total CVS HI	0.02
Total GS HI	0.02
Total Immune HI	0.05
Total Liver HI	0.007
Total Respiratory HI	0.00002
Total None Specified HI	0.01
Total Skin HI	0.02
Total Thyroid HI	0.01
Total Reproductive HI	0.009

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	4E-05	--	3E-05	--	7E-05					
			Aroclor-1260	4E-08	--	4E-08	--	8E-08					
			Heptachlor Epoxide	5E-07	--	3E-07	--	8E-07					
			2,3,7,8-TCDD Equivalents	4E-07	--	8E-08	--	5E-07					
			Aluminum	--	--	--	--	--					
			Arsenic	4E-06	--	7E-07	--	4E-06					
			Chromium VI	7E-05	--	--	--	7E-05					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Chemical Total	1E-04	--	3E-05	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	3E-11	--	--	3E-11					
			Aroclor-1260	--	1E-13	--	--	1E-13					
			Heptachlor Epoxide	--	1E-12	--	--	1E-12					
			2,3,7,8-TCDD Equivalents	--	9E-13	--	--	9E-13					
			Aluminum	--	--	--	--	--					
			Arsenic	--	8E-11	--	--	8E-11					
			Chromium VI	--	5E-08	--	--	5E-08					
			Cobalt	--	1E-10	--	--	1E-10					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Chemical Total	--	5E-08	--	--	5E-08					
		Exposure Point Total						5E-08					
	Exposure Medium Total							5E-08					
Medium Total								1E-04					

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial Receptor
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	2E-06	--	2E-06	--	4E-06					
			Aroclor-1260	1E-06	--	9E-07	--	2E-06					
			Heptachlor Epoxide	2E-08	--	1E-08	--	3E-08					
			2,3,7,8-TCDD Equivalents	3E-07	--	7E-08	--	4E-07					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	3E-06	--	6E-07	--	4E-06					
			Chromium VI	7E-06	--	- -	--	7E-06					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Chemical Total	1E-05	--	3E-06	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-13	--	--	9E-13					
			Aroclor-1260	--	2E-12	--	--	2E-12					
			Heptachlor Epoxide	--	4E-14	--	--	4E-14					
			2,3,7,8-TCDD Equivalents	--	6E-13	--	--	6E-13					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	6E-11	--	--	6E-11					
			Chromium VI	--	3E-09	--	--	3E-09					
			Cobalt	--	8E-11	--	--	8E-11					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Chemical Total	--	3E-09	--	--	3E-09					
		Exposure Point Total						3E-09					
	Exposure Medium Total							3E-09					
Medium Total								2E-05					
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	3E-06	--	2E-06	--	5E-06					
			Arsenic	9E-07	--	2E-07	--	1E-06					
			Chromium VI	7E-06	--	- -	--	7E-06					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	1E-05	--	2E-06	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	2E-12	--	--	2E-12					
			Arsenic	--	2E-11	--	--	2E-11					
			Chromium VI	--	5E-09	--	--	5E-09					
			Cobalt	--	1E-10	--	--	1E-10					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	5E-09	--	--	5E-09					
		Exposure Point Total						5E-09					
	Exposure Medium Total							5E-09					
Medium Total								1E-05					
Receptor Total							Receptor Risk Total	2E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-04	--	6E-05	--	2E-04	NA	--	--	--	--
			Aroclor-1260	1E-07	--	5E-08	--	2E-07	Immune	0.04	--	0.02	0.06
			Heptachlor Epoxide	2E-06	--	4E-07	--	2E-06	Liver	0.2	--	0.04	0.2
			2,3,7,8-TCDD Equivalents	1E-06	--	1E-07	--	1E-06	Reproductive	0.2	--	0.01	0.2
			Aluminum	- -	--	- -	--	- -	CNS	0.1	--	--	0.1
			Arsenic	1E-05	--	1E-06	--	1E-05	Skin, CVS	0.3	--	0.03	0.3
			Chromium VI	3E-04	--	- -	--	3E-04	None Specified	0.4	--	--	0.4
			Cobalt	- -	--	- -	--	- -	Thyroid	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.3	--	--	0.3
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.1	--	--	0.1
			Chemical Total	5E-04	--	6E-05	--	5E-04		2	--	0.10	2
		Exposure Point Total						5E-04					2
	Exposure Medium Total							5E-04					2
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Aroclor-1260	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Heptachlor Epoxide	--	3E-12	--	--	3E-12	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	3E-12	--	--	3E-12	Reproductive, Respi	--	2E-8	--	2E-8
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	3E-07	--	--	3E-07	Respiratory	--	0.00008	--	0.00008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00006	--	0.00006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Chemical Total	--	3E-07	--	--	3E-07		- -	0.0007	- -	0.0007
		Exposure Point Total						3E-07					0.0007
	Exposure Medium Total							3E-07					0.0007
Medium Total								5E-04					2

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	9E-06	--	3E-06	--	1E-05	NA	--	--	--	--
			Aroclor-1260	3E-06	--	1E-06	--	5E-06	Immune	1.0	--	0.4	1
			Heptachlor Epoxide	7E-08	--	2E-08	--	9E-08	Liver	0.007	--	0.002	0.008
			2,3,7,8-TCDD Equivalents	1E-06	--	1E-07	--	1E-06	Reproductive	0.1	--	0.01	0.2
			Aluminum	- -	--	- -	--	- -	CNS	0.09	--	--	0.09
			Arsenic	1E-05	--	9E-07	--	1E-05	Skin, CVS	0.3	--	0.02	0.3
			Chromium VI	3E-05	--	- -	--	3E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.3	--	--	0.3
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.1	--	--	0.1
			Chemical Total	5E-05	--	6E-06	--	6E-05		2	--	0.4	3
		Exposure Point Total						6E-05					3
	Exposure Medium Total							6E-05					3
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Aroclor-1260	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	1E-13	--	--	1E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	2E-12	--	--	2E-12	Reproductive, Respi	--	2E-8	--	2E-8
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00006	--	0.00006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.0006	- -	0.0006
		Exposure Point Total						3E-08					0.0006
	Exposure Medium Total							3E-08					0.0006
Medium Total								6E-05					3
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Arsenic	3E-06	--	2E-07	--	3E-06	Skin, CVS	0.07	--	0.006	0.08
			Chromium VI	3E-05	--	- -	--	3E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.2	--	--	0.2
			Chemical Total	4E-05	--	4E-06	--	4E-05		0.5	--	0.006	0.6
		Exposure Point Total						4E-05					0.6
	Exposure Medium Total							4E-05					0.6
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Arsenic	--	5E-11	--	--	5E-11	NA	--	0.000010	--	0.000010
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000008	--	0.000008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00007	--	0.00007
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.00009	- -	0.00009
		Exposure Point Total						3E-08					0.00009
	Exposure Medium Total							3E-08					0.00009
Medium Total								4E-05					0.6
Receptor Total							Receptor Risk Total	6E-04				Receptor HI Total	5

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.4
Total CVS HI	0.7
Total GS HI	0.8
Total Immune HI	1
Total Liver HI	0.2
Total Respiratory HI	0.0003
Total None Specified HI	0.5
Total Skin HI	0.7
Total Thyroid HI	0.6
Total Reproductive HI	0.3

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-05	--	1E-05	--	4E-05	NA	--	--	--	--
			Aroclor-1260	6E-08	--	3E-08	--	9E-08	Immune	0.004	--	0.002	0.007
			Heptachlor Epoxide	7E-07	--	3E-07	--	1E-06	Liver	0.02	--	0.007	0.02
			2,3,7,8-TCDD Equivalents	6E-07	--	7E-08	--	6E-07	Reproductive	0.02	--	0.002	0.02
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Arsenic	5E-06	--	6E-07	--	6E-06	Skin, CVS	0.03	--	0.004	0.04
			Chromium VI	4E-05	--	- -	--	4E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Chemical Total	7E-05	--	1E-05	--	8E-05		0.2	--	0.02	0.2
		Exposure Point Total						8E-05					0.2
	Exposure Medium Total							8E-05					0.2
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Aroclor-1260	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	1E-11	--	--	1E-11	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11	Reproductive, Respir	--	2E-8	--	2E-8
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	9E-10	--	--	9E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	4E-07	--	--	4E-07	Respiratory	--	0.00008	--	0.00008
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Chemical Total	--	4E-07	--	--	4E-07		- -	0.0007	- -	0.0007
		Exposure Point Total						4E-07					0.0007
	Exposure Medium Total							4E-07					0.0007
Medium Total								8E-05					0.2

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	1E-06	--	7E-07	--	2E-06	NA	--	--	--	--
			Aroclor-1260	1E-06	--	8E-07	--	2E-06	Immune	0.1	--	0.06	0.2
			Heptachlor Epoxide	3E-08	--	1E-08	--	4E-08	Liver	0.0007	--	0.0003	0.0010
			2,3,7,8-TCDD Equivalents	5E-07	--	6E-08	--	5E-07	Reproductive	0.02	--	0.002	0.02
			Aluminum	--	--	--	--	--	CNS	0.010	--	--	0.010
			Arsenic	4E-06	--	5E-07	--	5E-06	Skin, CVS	0.03	--	0.003	0.03
			Chromium VI	4E-06	--	--	--	4E-06	None Specified	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Thyroid	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	0.01	--	--	0.01
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.2	--	0.06	0.3
		Exposure Point Total						1E-05					0.3
	Exposure Medium Total							1E-05					0.3
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aroclor-1260	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Heptachlor Epoxide	--	5E-13	--	--	5E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	9E-12	--	--	9E-12	Reproductive, Respir	--	2E-8	--	2E-8
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	5E-08	--	--	5E-08	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	0.0004	--	0.0004
			Chemical Total	--	5E-08	--	--	5E-08		--	0.0006	--	0.0006
		Exposure Point Total						5E-08					0.0006
	Exposure Medium Total							5E-08					0.0006
Medium Total								1E-05					0.3
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	2E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Arsenic	1E-06	--	1E-07	--	1E-06	Skin, CVS	0.008	--	0.0009	0.009
			Chromium VI	4E-06	--	--	--	4E-06	None Specified	0.004	--	--	0.004
			Cobalt	--	--	--	--	--	Thyroid	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Chemical Total	7E-06	--	1E-06	--	8E-06		0.06	--	0.0009	0.06
		Exposure Point Total						8E-06					0.06
	Exposure Medium Total							8E-06					0.06
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.000010	--	0.000010
			Chromium VI	--	4E-08	--	--	4E-08	Respiratory	--	0.000008	--	0.000008
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00007	--	0.00007
			Iron	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	4E-08	--	--	4E-08		--	0.00009	--	0.00009
		Exposure Point Total						4E-08					0.00009
	Exposure Medium Total							4E-08					0.00009
Medium Total								8E-06					0.06
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	0.5

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.05
Total CVS HI	0.08
Total GS HI	0.08
Total Immune HI	0.2
Total Liver HI	0.02
Total Respiratory HI	0.0003
Total None Specified HI	0.05
Total Skin HI	0.08
Total Thyroid HI	0.06
Total Reproductive HI	0.04

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-04	--	7E-05	--	3E-04					
			Aroclor-1260	2E-07	--	9E-08	--	3E-07					
			Heptachlor Epoxide	2E-06	--	7E-07	--	3E-06					
			2,3,7,8-TCDD Equivalents	2E-06	--	2E-07	--	2E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	2E-05	--	2E-06	--	2E-05					
			Chromium VI	3E-04	--	- -	--	3E-04					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Chemical Total	5E-04	--	7E-05	--	6E-04					
		Exposure Point Total						6E-04					
	Exposure Medium Total							6E-04					
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	4E-10	--	--	4E-10					
			Aroclor-1260	--	1E-12	--	--	1E-12					
			Heptachlor Epoxide	--	2E-11	--	--	2E-11					
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-09	--	--	1E-09					
			Chromium VI	--	7E-07	--	--	7E-07					
			Cobalt	--	1E-09	--	--	1E-09					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Chemical Total	--	7E-07	--	--	7E-07					
		Exposure Point Total						7E-07					
	Exposure Medium Total							7E-07					
Medium Total								6E-04					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	1E-05	--	4E-06	--	1E-05					
			Aroclor-1260	5E-06	--	2E-06	--	7E-06					
			Heptachlor Epoxide	1E-07	--	3E-08	--	1E-07					
			2,3,7,8-TCDD Equivalents	2E-06	--	2E-07	--	2E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	1E-05	--	1E-06	--	2E-05					
			Chromium VI	3E-05	--	- -	--	3E-05					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Chemical Total	6E-05	--	8E-06	--	7E-05					
		Exposure Point Total						7E-05					
	Exposure Medium Total							7E-05					
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11					
			Aroclor-1260	--	3E-11	--	--	3E-11					
			Heptachlor Epoxide	--	7E-13	--	--	7E-13					
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-09	--	--	1E-09					
			Chromium VI	--	8E-08	--	--	8E-08					
			Cobalt	--	1E-09	--	--	1E-09					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Chemical Total	--	8E-08	--	--	8E-08					
		Exposure Point Total						8E-08					
	Exposure Medium Total							8E-08					
Medium Total								7E-05					
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	1E-05	--	5E-06	--	2E-05					
			Arsenic	4E-06	--	4E-07	--	4E-06					
			Chromium VI	3E-05	--	- -	--	3E-05					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	5E-05	--	5E-06	--	5E-05					
		Exposure Point Total						5E-05					
	Exposure Medium Total							5E-05					
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	3E-11	--	--	3E-11					
			Arsenic	--	3E-10	--	--	3E-10					
			Chromium VI	--	7E-08	--	--	7E-08					
			Cobalt	--	2E-09	--	--	2E-09					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	8E-08	--	--	8E-08					
		Exposure Point Total						8E-08					
	Exposure Medium Total							8E-08					
Medium Total								5E-05					
Receptor Total							Receptor Risk Total	7E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

APPENDIX D-2

PROUCL PRINTOUTS

Surface Soil

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Benzo(a)pyrene Equivalents - Half Non-detect

General Statistics

Number of Valid Data	19	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	6
Number of Missing Values	5	Percent Non-Detects	31.58%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	22.5	Minimum Detected	3.114
Maximum Detected	15600	Maximum Detected	9.655
Mean of Detected	3043	Mean of Detected	6.606
SD of Detected	4582	SD of Detected	2.081
Minimum Non-Detect	2.2	Minimum Non-Detect	0.788
Maximum Non-Detect	23	Maximum Non-Detect	3.135
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	12
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	36.84%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.712	Shapiro Wilk Test Statistic	0.962
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2085	Mean	5.153
SD	4012	SD	2.82
95% DL/2 (t) UCL	3681	95% H-Stat (DL/2) UCL	420182
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	576.1	Mean in Log Scale	5.04
SD	5391	SD in Log Scale	2.937
95% MLE (t) UCL	2721	Mean in Original Scale	2084
95% MLE (Tiku) UCL	2923	SD in Original Scale	4012
		95% t UCL	3680
		95% Percentile Bootstrap UCL	3600
		95% BCA Bootstrap UCL	4404
		95% H UCL	712266

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.402	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	7574		
nu star	10.44		
A-D Test Statistic	0.262	Nonparametric Statistics	
5% A-D Critical Value	0.799	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.799	Mean	2089
5% K-S Critical Value	0.251	SD	3903
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	931.9
		95% KM (t) UCL	3705
Assuming Gamma Distribution		95% KM (z) UCL	3622
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3678
Minimum	0.000001	95% KM (bootstrap t) UCL	5358
Maximum	15600	95% KM (BCA) UCL	3817
Mean	2082	95% KM (Percentile Bootstrap) UCL	3652
Median	141	95% KM (Chebyshev) UCL	6151
SD	4013	97.5% KM (Chebyshev) UCL	7908
k star	0.126	99% KM (Chebyshev) UCL	11361
Theta star	16571		
Nu star	4.774	Potential UCLs to Use	
AppChi2	1.049	95% KM (BCA) UCL	3817
95% Gamma Approximate UCL (Use when n >= 40)	9472		
95% Adjusted Gamma UCL (Use when n < 40)	10948		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Aroclor-1260

General Statistics

Number of Valid Data	9	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	7
Number of Missing Values	15	Percent Non-Detects	77.78%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	46	Minimum Detected	3.829
Maximum Detected	61	Maximum Detected	4.111
Mean of Detected	53.5	Mean of Detected	3.97
SD of Detected	10.61	SD of Detected	0.2
Minimum Non-Detect	34	Minimum Non-Detect	3.526
Maximum Non-Detect	37	Maximum Non-Detect	3.611
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	77.78%

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Warning: Data set has only 2 Distinct Detected Values.

This may not be adequate enough to compute meaningful and reliable test statistics and estimates.

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.

Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.

However, results obtained using 4 to 9 distinct values may not be reliable.

It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level	
Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	25.67
SD	16.22
95% DL/2 (t) UCL	35.72
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	

Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A
Data not Lognormal at 5% Significance Level	
Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	3.118
SD	0.489
95% H-Stat (DL/2) UCL	37.35
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% t UCL	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A
95% H-UCL	N/A

Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A

Data Distribution Test with Detected Values Only	
Data do not follow a Discernable Distribution (0.05)	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	47.67
SD	4.714
SE of Mean	2.222
95% KM (t) UCL	51.8
95% KM (z) UCL	51.32
95% KM (jackknife) UCL	58.3
95% KM (bootstrap t) UCL	N/A
95% KM (BCA) UCL	N/A
95% KM (Percentile Bootstrap) UCL	61
95% KM (Chebyshev) UCL	57.35
97.5% KM (Chebyshev) UCL	61.54

k star	N/A	99% KM (Chebyshev) UCL	69.78
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	51.8
95% Gamma Approximate UCL (Use when n >= 40)	N/A	95% KM (% Bootstrap) UCL	61
95% Adjusted Gamma UCL (Use when n < 40)	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Heptachlor Epoxide

General Statistics

Number of Valid Data	7	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	1
Number of Missing Values	15	Percent Non-Detects	14.29%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.7	Minimum Detected	0.993
Maximum Detected	200	Maximum Detected	5.298
Mean of Detected	54.28	Mean of Detected	3.217
SD of Detected	74.27	SD of Detected	1.455
Minimum Non-Detect	1.8	Minimum Non-Detect	0.588
Maximum Non-Detect	1.8	Maximum Non-Detect	0.588

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.985
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	46.66	Mean	2.742
SD	70.74	SD	1.828
95% DL/2 (t) UCL	98.61	95% H-Stat (DL/2) UCL	8471

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	40.16	Mean in Log Scale	2.693
SD	73.06	SD in Log Scale	1.919
95% MLE (t) UCL	93.82	Mean in Original Scale	46.62
95% MLE (Tiku) UCL	91.9	SD in Original Scale	70.77
		95% t UCL	98.6
		95% Percentile Bootstrap UCL	93.23
		95% BCA Bootstrap UCL	114.6
		95% H UCL	15100
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.495	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	109.7		
nu star	5.94		
A-D Test Statistic	0.278	**Nonparametric Statistics**	
5% A-D Critical Value	0.721	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.721	Mean	46.91
5% K-S Critical Value	0.343	SD	65.32
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	27.04
		95% KM (t) UCL	99.46
Assuming Gamma Distribution		95% KM (z) UCL	91.4
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	98.12
Minimum	0.000001	95% KM (bootstrap t) UCL	315.7
Maximum	200	95% KM (BCA) UCL	97.71
Mean	46.53	95% KM (Percentile Bootstrap) UCL	95.81
Median	21	95% KM (Chebyshev) UCL	164.8
SD	70.84	97.5% KM (Chebyshev) UCL	215.8
k star	0.229	99% KM (Chebyshev) UCL	316
Theta star	202.8		
Nu star	3.211	**Potential UCLs to Use**	
AppChi2	0.438	95% KM (Chebyshev) UCL	164.8
95% Gamma Approximate UCL (Use when n >= 40)	341.4		
95% Adjusted Gamma UCL (Use when n < 40)	657.6		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

2,3,7,8-TCDD Equivalents - Half Non-detect

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3
Number of Missing Values	17		

Warning: This data set only has 3 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable 2,3,7,8-TCDD Equivalents - Half Non-detect was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	7
Number of Missing Values	15		

Raw Statistics		Log-transformed Statistics	
Minimum	4740	Minimum of Log Data	8.464
Maximum	10000	Maximum of Log Data	9.21
Mean	6761	Mean of log Data	8.782
Geometric Mean	6515	SD of log Data	0.285
Median	5680		
SD	2004		
Std. Error of Mean	667.9		
Coefficient of Variation	0.296		
Skewness	0.676		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.837	Shapiro Wilk Test Statistic	0.855
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8003	95% H-UCL	8294
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9563
95% Adjusted-CLT UCL (Chen-1995)	8020	97.5% Chebyshev (MVUE) UCL	10778
95% Modified-t UCL (Johnson-1978)	8028	99% Chebyshev (MVUE) UCL	13166
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	9.172	**Data appear Normal at 5% Significance Level**	
Theta Star	737.2		
MLE of Mean	6761		
MLE of Standard Deviation	2232		
nu star	165.1		

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Approximate Chi Square Value (.05)	136.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	7860
Adjusted Chi Square Value	130.9	95% Jackknife UCL	8003
		95% Standard Bootstrap UCL	7790
Anderson-Darling Test Statistic	0.723	95% Bootstrap-t UCL	8235
Anderson-Darling 5% Critical Value	0.721	95% Hall's Bootstrap UCL	7675
Kolmogorov-Smirnov Test Statistic	0.259	95% Percentile Bootstrap UCL	7828
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	7890
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	9672
		97.5% Chebyshev(Mean, Sd) UCL	10932
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	13407
95% Approximate Gamma UCL (Use when n >= 40)	8184		
95% Adjusted Gamma UCL (Use when n < 40)	8529		
Potential UCL to Use		Use 95% Student's-t UCL	8003

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	15		

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.7	Minimum of Log Data	0.531
Maximum	10.4	Maximum of Log Data	2.342
Mean	5.333	Mean of log Data	1.528
Geometric Mean	4.611	SD of log Data	0.596
Median	5.3		
SD	2.871		
Std. Error of Mean	0.957		
Coefficient of Variation	0.538		
Skewness	0.492		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.965
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	7.113	95% H-UCL	9.185
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10.14
95% Adjusted-CLT UCL (Chen-1995)	7.075	97.5% Chebyshev (MVUE) UCL	12.2
95% Modified-t UCL (Johnson-1978)	7.139	99% Chebyshev (MVUE) UCL	16.24

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.471	**Data appear Normal at 5% Significance Level**	
Theta Star	2.159		
MLE of Mean	5.333		
MLE of Standard Deviation	3.393		
nu star	44.47		
Approximate Chi Square Value (.05)	30.18	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	6.907
Adjusted Chi Square Value	27.72	95% Jackknife UCL	7.113
		95% Standard Bootstrap UCL	6.832
Anderson-Darling Test Statistic	0.188	95% Bootstrap-t UCL	7.478
Anderson-Darling 5% Critical Value	0.726	95% Hall's Bootstrap UCL	7.004
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL	6.856
Kolmogorov-Smirnov 5% Critical Value	0.281	95% BCA Bootstrap UCL	6.967
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	9.505
		97.5% Chebyshev(Mean, Sd) UCL	11.31
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	14.86
95% Approximate Gamma UCL (Use when n >= 40)	7.86		
95% Adjusted Gamma UCL (Use when n < 40)	8.558		
Potential UCL to Use		Use 95% Student's-t UCL	7.113

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	15		

Raw Statistics		Log-transformed Statistics	
Minimum	6.8	Minimum of Log Data	1.917
Maximum	149	Maximum of Log Data	5.004
Mean	27.31	Mean of log Data	2.737
Geometric Mean	15.45	SD of log Data	0.896
Median	12		
SD	45.76		
Std. Error of Mean	15.25		
Coefficient of Variation	1.675		
Skewness	2.969		

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.459	Shapiro Wilk Test Statistic	0.696
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	55.67	95% H-UCL	59.91
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	51.13
95% Adjusted-CLT UCL (Chen-1995)	68.53	97.5% Chebyshev (MVUE) UCL	63.81
95% Modified-t UCL (Johnson-1978)	58.19	99% Chebyshev (MVUE) UCL	88.73
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.748	Data do not follow a Discernable Distribution (0.05)	
Theta Star	36.49		
MLE of Mean	27.31		
MLE of Standard Deviation	31.57		
nu star	13.47		
Approximate Chi Square Value (.05)	6.211	Nonparametric Statistics	
Adjusted Level of Significance	0.0231	95% CLT UCL	52.4
Adjusted Chi Square Value	5.208	95% Jackknife UCL	55.67
		95% Standard Bootstrap UCL	50.45
Anderson-Darling Test Statistic	1.79	95% Bootstrap-t UCL	349.9
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	232.4
Kolmogorov-Smirnov Test Statistic	0.395	95% Percentile Bootstrap UCL	56.92
Kolmogorov-Smirnov 5% Critical Value	0.287	95% BCA Bootstrap UCL	72.66
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	93.79
		97.5% Chebyshev(Mean, Sd) UCL	122.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	179.1
95% Approximate Gamma UCL (Use when n >= 40)	59.24		
95% Adjusted Gamma UCL (Use when n < 40)	70.64		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	93.79

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Cobalt

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	7
Number of Missing Values	15		

Raw Statistics		Log-transformed Statistics	
Minimum	2.4	Minimum of Log Data	0.875
Maximum	5.9	Maximum of Log Data	1.775
Mean	3.594	Mean of log Data	1.248
Geometric Mean	3.485	SD of log Data	0.259
Median	3.5		
SD	1.005		
Std. Error of Mean	0.335		
Coefficient of Variation	0.28		
Skewness	1.498		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.83	Shapiro Wilk Test Statistic	0.894
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.217	95% H-UCL	4.314
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.946
95% Adjusted-CLT UCL (Chen-1995)	4.324	97.5% Chebyshev (MVUE) UCL	5.532
95% Modified-t UCL (Johnson-1978)	4.245	99% Chebyshev (MVUE) UCL	6.685
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	10.92	**Data appear Normal at 5% Significance Level**	
Theta Star	0.329		
MLE of Mean	3.594		
MLE of Standard Deviation	1.088		
nu star	196.5		
Approximate Chi Square Value (.05)	165.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	4.146
Adjusted Chi Square Value	159	95% Jackknife UCL	4.217
		95% Standard Bootstrap UCL	4.118
Anderson-Darling Test Statistic	0.6	95% Bootstrap-t UCL	4.477
Anderson-Darling 5% Critical Value	0.721	95% Hall's Bootstrap UCL	7.281
Kolmogorov-Smirnov Test Statistic	0.242	95% Percentile Bootstrap UCL	4.133
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	4.306

Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.055
		97.5% Chebyshev(Mean, Sd) UCL	5.687
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.928
95% Approximate Gamma UCL (Use when n >= 40)	4.279		
95% Adjusted Gamma UCL (Use when n < 40)	4.443		
Potential UCL to Use		Use 95% Student's-t UCL	4.217

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	15		

Raw Statistics		Log-transformed Statistics	
Minimum	8310	Minimum of Log Data	9.025
Maximum	19000	Maximum of Log Data	9.852
Mean	13253	Mean of log Data	9.463
Geometric Mean	12874	SD of log Data	0.258
Median	13200		
SD	3348		
Std. Error of Mean	1116		
Coefficient of Variation	0.253		
Skewness	0.284		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.978	Shapiro Wilk Test Statistic	0.982
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	15328	95% H-UCL	15924
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	18253
95% Adjusted-CLT UCL (Chen-1995)	15202	97.5% Chebyshev (MVUE) UCL	20413
95% Modified-t UCL (Johnson-1978)	15346	99% Chebyshev (MVUE) UCL	24657
Gamma Distribution Test		Data Distribution	

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

k star (bias corrected)	11.66	**Data appear Normal at 5% Significance Level**	
Theta Star	1137		
MLE of Mean	13253		
MLE of Standard Deviation	3882		
nu star	209.8		
Approximate Chi Square Value (.05)	177.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	15089
Adjusted Chi Square Value	171	95% Jackknife UCL	15328
		95% Standard Bootstrap UCL	15028
Anderson-Darling Test Statistic	0.161	95% Bootstrap-t UCL	15415
Anderson-Darling 5% Critical Value	0.721	95% Hall's Bootstrap UCL	15463
Kolmogorov-Smirnov Test Statistic	0.146	95% Percentile Bootstrap UCL	15101
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	15112
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	18118
		97.5% Chebyshev(Mean, Sd) UCL	20222
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	24357
95% Approximate Gamma UCL (Use when n >= 40)	15684		
95% Adjusted Gamma UCL (Use when n < 40)	16263		
Potential UCL to Use		Use 95% Student's-t UCL	15328

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10
Number of Missing Values	14		

Raw Statistics		**Log-transformed Statistics**	
Minimum	7.7	Minimum of Log Data	2.041
Maximum	1280	Maximum of Log Data	7.155
Mean	236	Mean of log Data	4.478
Geometric Mean	88.07	SD of log Data	1.505
Median	95.35		
SD	393.4		
Std. Error of Mean	124.4		
Coefficient of Variation	1.667		
Skewness	2.541		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.606	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

95% Student's-t UCL	464	95% H-UCL	2272
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	720
95% Adjusted-CLT UCL (Chen-1995)	547.4	97.5% Chebyshev (MVUE) UCL	934
95% Modified-t UCL (Johnson-1978)	480.7	99% Chebyshev (MVUE) UCL	1354
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.503	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	469.2		
MLE of Mean	236		
MLE of Standard Deviation	332.8		
nu star	10.06		
Approximate Chi Square Value (.05)	3.979	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0267	95% CLT UCL	440.6
Adjusted Chi Square Value	3.341	95% Jackknife UCL	464
		95% Standard Bootstrap UCL	431
Anderson-Darling Test Statistic	0.565	95% Bootstrap-t UCL	1686
Anderson-Darling 5% Critical Value	0.767	95% Hall's Bootstrap UCL	1734
Kolmogorov-Smirnov Test Statistic	0.274	95% Percentile Bootstrap UCL	439.3
Kolmogorov-Smirnov 5% Critical Value	0.278	95% BCA Bootstrap UCL	567.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	778.2
		97.5% Chebyshev(Mean, Sd) UCL	1013
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1474
95% Approximate Gamma UCL (Use when n >= 40)	596.7		
95% Adjusted Gamma UCL (Use when n < 40)	710.5		
Potential UCL to Use		Use 95% Approximate Gamma UCL	596.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	15		

Raw Statistics		**Log-transformed Statistics**	
Minimum	92	Minimum of Log Data	4.522
Maximum	294	Maximum of Log Data	5.684
Mean	179.9	Mean of log Data	5.143
Geometric Mean	171.2	SD of log Data	0.339
Median	180		
SD	58.96		
Std. Error of Mean	19.65		
Coefficient of Variation	0.328		
Skewness	0.536		

PROUCL OUTPUT - HIGH CONCENTRATIONS AREA SURFACE SOIL

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	216.4	95% H-UCL	232.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	269.5
95% Adjusted-CLT UCL (Chen-1995)	216	97.5% Chebyshev (MVUE) UCL	308.2
95% Modified-t UCL (Johnson-1978)	217	99% Chebyshev (MVUE) UCL	384.2
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	6.936	Data appear Normal at 5% Significance Level	
Theta Star	25.94		
MLE of Mean	179.9		
MLE of Standard Deviation	68.3		
nu star	124.8		
Approximate Chi Square Value (.05)	100	Nonparametric Statistics	
Adjusted Level of Significance	0.0231	95% CLT UCL	212.2
Adjusted Chi Square Value	95.36	95% Jackknife UCL	216.4
		95% Standard Bootstrap UCL	210.1
Anderson-Darling Test Statistic	0.238	95% Bootstrap-t UCL	221.7
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL	224.2
Kolmogorov-Smirnov Test Statistic	0.159	95% Percentile Bootstrap UCL	209.9
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	213.4
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	265.6
		97.5% Chebyshev(Mean, Sd) UCL	302.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	375.4
95% Approximate Gamma UCL (Use when n >= 40)	224.5		
95% Adjusted Gamma UCL (Use when n < 40)	235.5		
Potential UCL to Use		Use 95% Student's-t UCL	216.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Benzo(a)pyrene Equivalents-Half ND

General Statistics

Number of Valid Data	60	Number of Detected Data	43
Number of Distinct Detected Data	43	Number of Non-Detect Data	17
Number of Missing Values	34	Percent Non-Detects	28.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	648	Maximum Detected	6.474
Mean of Detected	208.2	Mean of Detected	4.962
SD of Detected	179.1	SD of Detected	0.915
Minimum Non-Detect	19	Minimum Non-Detect	2.944
Maximum Non-Detect	1800	Maximum Non-Detect	7.496
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	60
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.836	Shapiro Wilk Test Statistic	0.964
5% Shapiro Wilk Critical Value	0.943	5% Shapiro Wilk Critical Value	0.943
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	199.9	Mean	4.892
SD	183.8	SD	0.978
95% DL/2 (t) UCL	239.5	95% H-Stat (DL/2) UCL	289.1
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.779
		SD in Log Scale	0.876
		Mean in Original Scale	173
		SD in Original Scale	162.3
		95% t UCL	208.1
		95% Percentile Bootstrap UCL	208.8
		95% BCA Bootstrap UCL	212.6
		95% H-UCL	224.7
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.385	Data appear Lognormal at 5% Significance Level	

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

Theta Star	150.4		
nu star	119.1		
A-D Test Statistic	0.814	**Nonparametric Statistics**	
5% A-D Critical Value	0.768	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.768	Mean	177.3
5% K-S Critical Value	0.137	SD	164.9
Data not Gamma Distributed at 5% Significance Level		SE of Mean	22.41
		95% KM (t) UCL	214.8
Assuming Gamma Distribution		95% KM (z) UCL	214.2
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	214.2
Minimum	0.000001	95% KM (bootstrap t) UCL	218.8
Maximum	648	95% KM (BCA) UCL	212.7
Mean	181.5	95% KM (Percentile Bootstrap) UCL	214.4
Median	132	95% KM (Chebyshev) UCL	275
SD	161.5	97.5% KM (Chebyshev) UCL	317.3
k star	0.632	99% KM (Chebyshev) UCL	400.3
Theta star	287.1		
Nu star	75.87	**Potential UCLs to Use**	
AppChi2	56.8	95% KM (BCA) UCL	212.7
95% Gamma Approximate UCL (Use when n >= 40)	242.4		
95% Adjusted Gamma UCL (Use when n < 40)	244.2		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Aroclor-1260

General Statistics

Number of Valid Data	73	Number of Detected Data	49
Number of Distinct Detected Data	41	Number of Non-Detect Data	24
Number of Missing Values	21	Percent Non-Detects	32.88%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	4.1	Minimum Detected	1.411
Maximum Detected	12000	Maximum Detected	9.393
Mean of Detected	586.2	Mean of Detected	4.63
SD of Detected	1763	SD of Detected	1.925
Minimum Non-Detect	7.1	Minimum Non-Detect	1.96
Maximum Non-Detect	36	Maximum Non-Detect	3.584
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	31
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	57.53%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.343	Shapiro Wilk Test Statistic	0.961

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

5% Shapiro Wilk Critical Value	0.947	5% Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	396.1	Mean	3.714
SD	1465	SD	2.09
95% DL/2 (t) UCL	681.9	95% H-Stat (DL/2) UCL	869.3
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.481
		SD in Log Scale	2.326
		Mean in Original Scale	394.8
		SD in Original Scale	1465
		95% t UCL	680.6
		95% Percentile Bootstrap UCL	719.2
		95% BCA Bootstrap UCL	929.4
		95% H-UCL	1391
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.371	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1581		
nu star	36.34		
A-D Test Statistic	1.992	**Nonparametric Statistics**	
5% A-D Critical Value	0.843	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.843	Mean	395.5
5% K-S Critical Value	0.136	SD	1455
Data not Gamma Distributed at 5% Significance Level		SE of Mean	172.1
		95% KM (t) UCL	682.2
Assuming Gamma Distribution		95% KM (z) UCL	678.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	681.3
Minimum	0.000001	95% KM (bootstrap t) UCL	1271
Maximum	12000	95% KM (BCA) UCL	736
Mean	393.5	95% KM (Percentile Bootstrap) UCL	709.9
Median	18	95% KM (Chebyshev) UCL	1146
SD	1466	97.5% KM (Chebyshev) UCL	1470
k star	0.113	99% KM (Chebyshev) UCL	2108
Theta star	3477		
Nu star	16.52	**Potential UCLs to Use**	
AppChi2	8.33	97.5% KM (Chebyshev) UCL	1470
95% Gamma Approximate UCL (Use when n >= 40)	780.3		
95% Adjusted Gamma UCL (Use when n < 40)	791.5		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Heptachlor Epoxide

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
Number of Missing Values	71	Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4	Minimum Detected	1.386
Maximum Detected	12	Maximum Detected	2.485
Mean of Detected	7.86	Mean of Detected	1.997
SD of Detected	2.991	SD of Detected	0.414
Minimum Non-Detect	0.81	Minimum Non-Detect	-0.211
Maximum Non-Detect	1.7	Maximum Non-Detect	0.531
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	64.29%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.979	Shapiro Wilk Test Statistic	0.961
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.143	Mean	0.265
SD	4.011	SD	1.381
95% DL/2 (t) UCL	5.041	95% H-Stat (DL/2) UCL	12.76
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	7.955	Mean in Log Scale	1.096
SD	2.676	SD in Log Scale	0.752
95% MLE (t) UCL	9.221	Mean in Original Scale	3.996
95% MLE (Tiku) UCL	10.06	SD in Original Scale	3.432
		95% t UCL	5.62
		95% Percentile Bootstrap UCL	5.56
		95% BCA Bootstrap UCL	5.898
		95% H UCL	6.563
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	3.308	**Data appear Normal at 5% Significance Level**	
Theta Star	2.376		
nu star	33.08		

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

A-D Test Statistic	0.232	**Nonparametric Statistics**	
5% A-D Critical Value	0.68	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.68	Mean	5.379
5% K-S Critical Value	0.358	SD	2.445
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.731
		95% KM (t) UCL	6.672
Assuming Gamma Distribution		95% KM (z) UCL	6.58
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.906
Minimum	0.000001	95% KM (bootstrap t) UCL	6.532
Maximum	12	95% KM (BCA) UCL	8.936
Mean	2.807	95% KM (Percentile Bootstrap) UCL	8.936
Median	0.000001	95% KM (Chebyshev) UCL	8.563
SD	4.246	97.5% KM (Chebyshev) UCL	9.941
k star	0.118	99% KM (Chebyshev) UCL	12.65
Theta star	23.8		
Nu star	3.302	**Potential UCLs to Use**	
AppChi2	0.467	95% KM (t) UCL	6.672
95% Gamma Approximate UCL (Use when n >= 40)	19.84	95% KM (Percentile Bootstrap) UCL	8.936
95% Adjusted Gamma UCL (Use when n < 40)	26.19		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Data	49	Number of Detected Data	46
Number of Distinct Detected Data	30	Number of Non-Detect Data	3
Number of Missing Values	45	Percent Non-Detects	6.12%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.4	Minimum Detected	0.336
Maximum Detected	7.4	Maximum Detected	2.001
Mean of Detected	3.884	Mean of Detected	1.308
SD of Detected	1.219	SD of Detected	0.322
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	5.4	Maximum Non-Detect	1.686
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	43
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	87.76%

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL

UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.98
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.738	Mean	1.244
SD	1.331	SD	0.423
95% DL/2 (t) UCL	4.057	95% H-Stat (DL/2) UCL	4.242
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.596	Mean in Log Scale	1.278
SD	1.555	SD in Log Scale	0.34
95% MLE (t) UCL	3.969	Mean in Original Scale	3.791
95% MLE (Tiku) UCL	4.931	SD in Original Scale	1.249
		95% t UCL	4.091
		95% Percentile Bootstrap UCL	4.082
		95% BCA Bootstrap UCL	4.104
		95% H UCL	4.157
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	9.732	**Data appear Normal at 5% Significance Level**	
Theta Star	0.399		
nu star	895.4		
A-D Test Statistic	0.325	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	3.773
5% K-S Critical Value	0.13	SD	1.275
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.185
		95% KM (t) UCL	4.084
Assuming Gamma Distribution		95% KM (z) UCL	4.078
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.073
Minimum	0.63	95% KM (bootstrap t) UCL	4.097
Maximum	7.4	95% KM (BCA) UCL	4.106
Mean	3.75	95% KM (Percentile Bootstrap) UCL	4.095
Median	3.8	95% KM (Chebyshev) UCL	4.581
SD	1.348	97.5% KM (Chebyshev) UCL	4.93
k star	5.666	99% KM (Chebyshev) UCL	5.616
Theta star	0.662		
Nu star	555.2	**Potential UCLs to Use**	
AppChi2	501.6	95% KM (t) UCL	4.084
95% Gamma Approximate UCL (Use when n >= 40)	4.151	95% KM (Percentile Bootstrap) UCL	4.095
95% Adjusted Gamma UCL (Use when n < 40)	4.164		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

2,3,7,8-TCDD Equivalents-Half ND

General Statistics

Number of Valid Observations	13	Number of Distinct Observations	12
Number of Missing Values	78		

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.612	Minimum of Log Data	-0.491
Maximum	15.2	Maximum of Log Data	2.721
Mean	4.972	Mean of log Data	1.224
Geometric Mean	3.4	SD of log Data	0.929
Median	2.98		
SD	4.607		
Std. Error of Mean	1.278		
Coefficient of Variation	0.926		
Skewness	1.454		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.811	Shapiro Wilk Test Statistic	0.977
Shapiro Wilk Critical Value	0.866	Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7.25	95% H-UCL	10.87
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11.03
95% Adjusted-CLT UCL (Chen-1995)	7.625	97.5% Chebyshev (MVUE) UCL	13.64
95% Modified-t UCL (Johnson-1978)	7.336	99% Chebyshev (MVUE) UCL	18.76
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.174	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	4.235		
MLE of Mean	4.972		
MLE of Standard Deviation	4.589		
nu star	30.53		
Approximate Chi Square Value (.05)	18.91	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0301	95% CLT UCL	7.074
Adjusted Chi Square Value	17.61	95% Jackknife UCL	7.25
		95% Standard Bootstrap UCL	7.036
Anderson-Darling Test Statistic	0.313	95% Bootstrap-t UCL	8.923
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL	10.07
Kolmogorov-Smirnov Test Statistic	0.149	95% Percentile Bootstrap UCL	7.183

Kolmogorov-Smirnov 5% Critical Value	0.241	95% BCA Bootstrap UCL	7.438
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	10.54
		97.5% Chebyshev(Mean, Sd) UCL	12.95
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	17.69
95% Approximate Gamma UCL (Use when n >= 40)	8.028		
95% Adjusted Gamma UCL (Use when n < 40)	8.618		
Potential UCL to Use		Use 95% Approximate Gamma UCL	8.028

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Aluminum

General Statistics

Number of Valid Observations	49	Number of Distinct Observations	39
Number of Missing Values	45		

Raw Statistics		**Log-transformed Statistics**	
Minimum	2600	Minimum of Log Data	7.863
Maximum	13000	Maximum of Log Data	9.473
Mean	6856	Mean of log Data	8.791
Geometric Mean	6577	SD of log Data	0.301
Median	6900		
SD	1931		
Std. Error of Mean	275.8		
Coefficient of Variation	0.282		
Skewness	0.517		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.965	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7318	95% H-UCL	7441
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8189
95% Adjusted-CLT UCL (Chen-1995)	7331	97.5% Chebyshev (MVUE) UCL	8758
95% Modified-t UCL (Johnson-1978)	7321	99% Chebyshev (MVUE) UCL	9875
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.48	**Data appear Normal at 5% Significance Level**	
Theta Star	597.3		
MLE of Mean	6856		
MLE of Standard Deviation	2024		
nu star	1125		
Approximate Chi Square Value (.05)	1048	**Nonparametric Statistics**	

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

Adjusted Level of Significance	0.0451	95% CLT UCL	7309
Adjusted Chi Square Value	1046	95% Jackknife UCL	7318
		95% Standard Bootstrap UCL	7312
Anderson-Darling Test Statistic	0.694	95% Bootstrap-t UCL	7332
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	7357
Kolmogorov-Smirnov Test Statistic	0.118	95% Percentile Bootstrap UCL	7327
Kolmogorov-Smirnov 5% Critical Value	0.126	95% BCA Bootstrap UCL	7301
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8058
		97.5% Chebyshev(Mean, Sd) UCL	8578
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9600
95% Approximate Gamma UCL (Use when n >= 40)	7358		
95% Adjusted Gamma UCL (Use when n < 40)	7374		
Potential UCL to Use		Use 95% Student's-t UCL	7318

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	52	Number of Distinct Observations	33
Number of Missing Values	42		

Raw Statistics		Log-transformed Statistics	
Minimum	0.75	Minimum of Log Data	-0.288
Maximum	36	Maximum of Log Data	3.584
Mean	3.175	Mean of log Data	0.798
Geometric Mean	2.221	SD of log Data	0.698
Median	1.95		
SD	4.993		
Std. Error of Mean	0.692		
Coefficient of Variation	1.573		
Skewness	5.861		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.314	Lilliefors Test Statistic	0.153
Lilliefors Critical Value	0.123	Lilliefors Critical Value	0.123
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.335	95% H-UCL	3.452
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.116
95% Adjusted-CLT UCL (Chen-1995)	4.915	97.5% Chebyshev (MVUE) UCL	4.679
95% Modified-t UCL (Johnson-1978)	4.429	99% Chebyshev (MVUE) UCL	5.784
Gamma Distribution Test		**Data Distribution**	

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

k star (bias corrected)	1.468	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.163		
MLE of Mean	3.175		
MLE of Standard Deviation	2.62		
nu star	152.7		
Approximate Chi Square Value (.05)	125.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0454	95% CLT UCL	4.314
Adjusted Chi Square Value	124.4	95% Jackknife UCL	4.335
		95% Standard Bootstrap UCL	4.318
Anderson-Darling Test Statistic	3.343	95% Bootstrap-t UCL	6.341
Anderson-Darling 5% Critical Value	0.767	95% Hall's Bootstrap UCL	8.776
Kolmogorov-Smirnov Test Statistic	0.215	95% Percentile Bootstrap UCL	4.436
Kolmogorov-Smirnov 5% Critical Value	0.125	95% BCA Bootstrap UCL	5.312
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.193
		97.5% Chebyshev(Mean, Sd) UCL	7.499
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	10.06
95% Approximate Gamma UCL (Use when n >= 40)	3.874		
95% Adjusted Gamma UCL (Use when n < 40)	3.896		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	6.193

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chromium

General Statistics

Number of Valid Observations	52	Number of Distinct Observations	44
Number of Missing Values	42		

Raw Statistics		Log-transformed Statistics	
Minimum	5.5	Minimum of Log Data	1.705
Maximum	17	Maximum of Log Data	2.833
Mean	9.236	Mean of log Data	2.182
Geometric Mean	8.865	SD of log Data	0.285
Median	8.875		
SD	2.771		
Std. Error of Mean	0.384		
Coefficient of Variation	0.3		
Skewness	0.96		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.116	Lilliefors Test Statistic	0.0581
Lilliefors Critical Value	0.123	Lilliefors Critical Value	0.123
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

95% Student's-t UCL	9.879	95% H-UCL	9.889
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10.84
95% Adjusted-CLT UCL (Chen-1995)	9.922	97.5% Chebyshev (MVUE) UCL	11.54
95% Modified-t UCL (Johnson-1978)	9.888	99% Chebyshev (MVUE) UCL	12.92
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.68	**Data appear Normal at 5% Significance Level**	
Theta Star	0.791		
MLE of Mean	9.236		
MLE of Standard Deviation	2.703		
nu star	1214		
Approximate Chi Square Value (.05)	1134	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0454	95% CLT UCL	9.868
Adjusted Chi Square Value	1132	95% Jackknife UCL	9.879
		95% Standard Bootstrap UCL	9.857
Anderson-Darling Test Statistic	0.414	95% Bootstrap-t UCL	9.947
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	9.952
Kolmogorov-Smirnov Test Statistic	0.0767	95% Percentile Bootstrap UCL	9.84
Kolmogorov-Smirnov 5% Critical Value	0.123	95% BCA Bootstrap UCL	9.918
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	10.91
		97.5% Chebyshev(Mean, Sd) UCL	11.64
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	13.06
95% Approximate Gamma UCL (Use when n >= 40)	9.886		
95% Adjusted Gamma UCL (Use when n < 40)	9.905		
Potential UCL to Use		Use 95% Student's-t UCL	9.879

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	49	Number of Distinct Observations	30
Number of Missing Values	45		
Raw Statistics		**Log-transformed Statistics**	
Minimum	6100	Minimum of Log Data	8.716
Maximum	45000	Maximum of Log Data	10.71
Mean	13200	Mean of log Data	9.429
Geometric Mean	12449	SD of log Data	0.321
Median	11900		
SD	5700		
Std. Error of Mean	814.3		
Coefficient of Variation	0.432		
Skewness	3.799		

Relevant UCL Statistics

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.681	Shapiro Wilk Test Statistic	0.926
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14566	95% H-UCL	14246
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15764
95% Adjusted-CLT UCL (Chen-1995)	15012	97.5% Chebyshev (MVUE) UCL	16921
95% Modified-t UCL (Johnson-1978)	14640	99% Chebyshev (MVUE) UCL	19192
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.177	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1614		
MLE of Mean	13200		
MLE of Standard Deviation	4616		
nu star	801.4		
Approximate Chi Square Value (.05)	736.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0451	95% CLT UCL	14540
Adjusted Chi Square Value	734.8	95% Jackknife UCL	14566
		95% Standard Bootstrap UCL	14558
Anderson-Darling Test Statistic	1.534	95% Bootstrap-t UCL	15291
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	20836
Kolmogorov-Smirnov Test Statistic	0.156	95% Percentile Bootstrap UCL	14655
Kolmogorov-Smirnov 5% Critical Value	0.127	95% BCA Bootstrap UCL	14971
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	16749
		97.5% Chebyshev(Mean, Sd) UCL	18285
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	21302
95% Approximate Gamma UCL (Use when n >= 40)	14359		
95% Adjusted Gamma UCL (Use when n < 40)	14396		
Potential UCL to Use		Use 95% Student's-t UCL	14566
		or 95% Modified-t UCL	14640

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	55	Number of Distinct Observations	43
Number of Missing Values	39		

Raw Statistics		Log-transformed Statistics	
Minimum	4.9	Minimum of Log Data	1.589
Maximum	320	Maximum of Log Data	5.768
Mean	23.64	Mean of log Data	2.709
Geometric Mean	15.01	SD of log Data	0.797

Median	11.7		
SD	43.12		
Std. Error of Mean	5.814		
Coefficient of Variation	1.824		
Skewness	6.258		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.332	Lilliefors Test Statistic	0.143
Lilliefors Critical Value	0.119	Lilliefors Critical Value	0.119
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	33.37	95% H-UCL	25.94
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	31.21
95% Adjusted-CLT UCL (Chen-1995)	38.44	97.5% Chebyshev (MVUE) UCL	35.86
95% Modified-t UCL (Johnson-1978)	34.19	99% Chebyshev (MVUE) UCL	45
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.186	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	19.94		
MLE of Mean	23.64		
MLE of Standard Deviation	21.71		
nu star	130.4		
Approximate Chi Square Value (.05)	105	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0456	95% CLT UCL	33.2
Adjusted Chi Square Value	104.4	95% Jackknife UCL	33.37
		95% Standard Bootstrap UCL	33.25
Anderson-Darling Test Statistic	3.167	95% Bootstrap-t UCL	50.07
Anderson-Darling 5% Critical Value	0.774	95% Hall's Bootstrap UCL	69.25
Kolmogorov-Smirnov Test Statistic	0.169	95% Percentile Bootstrap UCL	34.02
Kolmogorov-Smirnov 5% Critical Value	0.123	95% BCA Bootstrap UCL	42.18
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	48.98
		97.5% Chebyshev(Mean, Sd) UCL	59.95
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	81.49
95% Approximate Gamma UCL (Use when n >= 40)	29.35		
95% Adjusted Gamma UCL (Use when n < 40)	29.52		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	48.98

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	49	Number of Distinct Observations	34
Number of Missing Values	45		

PROUCL OUTPUT - LOW CONCENTRATIONS SURFACE SOIL

Raw Statistics		Log-transformed Statistics	
Minimum	60	Minimum of Log Data	4.094
Maximum	440	Maximum of Log Data	6.087
Mean	210.8	Mean of log Data	5.237
Geometric Mean	188	SD of log Data	0.501
Median	191		
SD	98.12		
Std. Error of Mean	14.02		
Coefficient of Variation	0.465		
Skewness	0.57		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.956
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	234.3	95% H-UCL	244.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	282.2
95% Adjusted-CLT UCL (Chen-1995)	235.1	97.5% Chebyshev (MVUE) UCL	312.4
95% Modified-t UCL (Johnson-1978)	234.5	99% Chebyshev (MVUE) UCL	371.6
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.268	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	49.4		
MLE of Mean	210.8		
MLE of Standard Deviation	102		
nu star	418.2		
Approximate Chi Square Value (.05)	371.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0451	95% CLT UCL	233.9
Adjusted Chi Square Value	370.5	95% Jackknife UCL	234.3
		95% Standard Bootstrap UCL	233.4
Anderson-Darling Test Statistic	0.37	95% Bootstrap-t UCL	235.7
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	235.3
Kolmogorov-Smirnov Test Statistic	0.0755	95% Percentile Bootstrap UCL	234.4
Kolmogorov-Smirnov 5% Critical Value	0.127	95% BCA Bootstrap UCL	235.7
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	271.9
		97.5% Chebyshev(Mean, Sd) UCL	298.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	350.3
95% Approximate Gamma UCL (Use when n >= 40)	237.1		
95% Adjusted Gamma UCL (Use when n < 40)	238		
Potential UCL to Use		Use 95% Approximate Gamma UCL	237.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Subsurface Soil

PROUCL OUTPUT - SUBSURFACE SOIL

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Benzo(a)pyrene Equivalents-1/2 ND

General Statistics

Number of Valid Data	9	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	5
Number of Missing Values	1	Percent Non-Detects	55.56%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	30.6	Minimum Detected	3.421
Maximum Detected	584	Maximum Detected	6.37
Mean of Detected	248.7	Mean of Detected	5.05
SD of Detected	239.9	SD of Detected	1.24
Minimum Non-Detect	17	Minimum Non-Detect	2.833
Maximum Non-Detect	20	Maximum Non-Detect	2.996
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	5
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	55.56%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.919	Shapiro Wilk Test Statistic	0.978
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	115.7	Mean	3.483
SD	193.7	SD	1.67
95% DL/2 (t) UCL	235.7	95% H-Stat (DL/2) UCL	2327
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.822
		SD in Log Scale	2.282
		Mean in Original Scale	112.3

PROUCL OUTPUT - SUBSURFACE SOIL

		SD in Original Scale	195.8
		95% t UCL	233.6
		95% Percentile Bootstrap UCL	223.2
		95% BCA Bootstrap UCL	256.6
		95% H-UCL	41111
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.47	**Data appear Normal at 5% Significance Level**	
Theta Star	529.2		
nu star	3.759		
A-D Test Statistic	0.195	**Nonparametric Statistics**	
5% A-D Critical Value	0.665	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.665	Mean	127.5
5% K-S Critical Value	0.401	SD	175.9
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	67.69
		95% KM (t) UCL	253.4
Assuming Gamma Distribution		95% KM (z) UCL	238.9
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	242.5
Minimum	0.000001	95% KM (bootstrap t) UCL	284.8
Maximum	584	95% KM (BCA) UCL	584
Mean	110.5	95% KM (Percentile Bootstrap) UCL	319.6
Median	0.000001	95% KM (Chebyshev) UCL	422.6
SD	196.9	97.5% KM (Chebyshev) UCL	550.3
k star	0.129	99% KM (Chebyshev) UCL	801
Theta star	858.1		
Nu star	2.318	**Potential UCLs to Use**	
AppChi2	0.203	95% KM (t) UCL	253.4
95% Gamma Approximate UCL (Use when n >= 40)	1263	95% KM (Percentile Bootstrap) UCL	319.6
95% Adjusted Gamma UCL (Use when n < 40)	N/A		
Note: DL/2 is not a recommended method.			
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
For additional insight, the user may want to consult a statistician.			

PROUCL OUTPUT - SUBSURFACE SOIL

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	8
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	0.13	Minimum of Log Data	-2.04
Maximum	2.3	Maximum of Log Data	0.833
Mean	1.133	Mean of log Data	-0.321
Geometric Mean	0.725	SD of log Data	1.152
Median	1.5		
SD	0.851		
Std. Error of Mean	0.284		
Coefficient of Variation	0.751		
Skewness	-0.0953		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.862	Shapiro Wilk Test Statistic	0.827
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.661	95% H-UCL	6.068
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.474
95% Adjusted-CLT UCL (Chen-1995)	1.59	97.5% Chebyshev (MVUE) UCL	4.428
95% Modified-t UCL (Johnson-1978)	1.659	99% Chebyshev (MVUE) UCL	6.302
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.915	**Data appear Normal at 5% Significance Level**	
Theta Star	1.239		
MLE of Mean	1.133		
MLE of Standard Deviation	1.185		
nu star	16.47		
Approximate Chi Square Value (.05)	8.292	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	1.6

PROUCL OUTPUT - SUBSURFACE SOIL

Adjusted Chi Square Value	7.103	95% Jackknife UCL	1.661
		95% Standard Bootstrap UCL	1.578
Anderson-Darling Test Statistic	0.745	95% Bootstrap-t UCL	1.638
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL	1.505
Kolmogorov-Smirnov Test Statistic	0.289	95% Percentile Bootstrap UCL	1.576
Kolmogorov-Smirnov 5% Critical Value	0.285	95% BCA Bootstrap UCL	1.58
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2.37
		97.5% Chebyshev(Mean, Sd) UCL	2.905
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3.956
95% Approximate Gamma UCL (Use when n >= 40)	2.251		
95% Adjusted Gamma UCL (Use when n < 40)	2.627		
Potential UCL to Use		Use 95% Student's-t UCL	1.661

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Chromium

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	4.7	Minimum of Log Data	1.548
Maximum	11	Maximum of Log Data	2.398
Mean	7.839	Mean of log Data	2.021
Geometric Mean	7.544	SD of log Data	0.299
Median	8.25		
SD	2.23		
Std. Error of Mean	0.743		
Coefficient of Variation	0.285		
Skewness	-0.0344		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.937	Shapiro Wilk Test Statistic	0.931
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829

PROUCL OUTPUT - SUBSURFACE SOIL

Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9.221	95% H-UCL	9.755
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11.28
95% Adjusted-CLT UCL (Chen-1995)	9.053	97.5% Chebyshev (MVUE) UCL	12.76
95% Modified-t UCL (Johnson-1978)	9.22	99% Chebyshev (MVUE) UCL	15.67
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	8.864	**Data appear Normal at 5% Significance Level**	
Theta Star	0.884		
MLE of Mean	7.839		
MLE of Standard Deviation	2.633		
nu star	159.6		
Approximate Chi Square Value (.05)	131.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	9.062
Adjusted Chi Square Value	126	95% Jackknife UCL	9.221
		95% Standard Bootstrap UCL	8.963
Anderson-Darling Test Statistic	0.354	95% Bootstrap-t UCL	9.181
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL	8.902
Kolmogorov-Smirnov Test Statistic	0.194	95% Percentile Bootstrap UCL	9.033
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	8.911
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	11.08
		97.5% Chebyshev(Mean, Sd) UCL	12.48
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15.24
95% Approximate Gamma UCL (Use when n >= 40)	9.522		
95% Adjusted Gamma UCL (Use when n < 40)	9.93		
Potential UCL to Use		Use 95% Student's-t UCL	9.221

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Cobalt

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	7
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	1.9	Minimum of Log Data	0.642
Maximum	6.7	Maximum of Log Data	1.902

PROUCL OUTPUT - SUBSURFACE SOIL

Mean	3.744	Mean of log Data	1.245
Geometric Mean	3.472	SD of log Data	0.415
Median	3.9		
SD	1.541		
Std. Error of Mean	0.514		
Coefficient of Variation	0.412		
Skewness	0.678		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.92	Shapiro Wilk Test Statistic	0.943
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.7	95% H-UCL	5.185
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.025
95% Adjusted-CLT UCL (Chen-1995)	4.714	97.5% Chebyshev (MVUE) UCL	7.011
95% Modified-t UCL (Johnson-1978)	4.719	99% Chebyshev (MVUE) UCL	8.949

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.595	**Data appear Normal at 5% Significance Level**	
Theta Star	0.815		
MLE of Mean	3.744		
MLE of Standard Deviation	1.747		
nu star	82.71		
Approximate Chi Square Value (.05)	62.75	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	4.589
Adjusted Chi Square Value	59.1	95% Jackknife UCL	4.7
		95% Standard Bootstrap UCL	4.581
Anderson-Darling Test Statistic	0.356	95% Bootstrap-t UCL	4.854
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL	4.731
Kolmogorov-Smirnov Test Statistic	0.222	95% Percentile Bootstrap UCL	4.567
Kolmogorov-Smirnov 5% Critical Value	0.28	95% BCA Bootstrap UCL	4.656
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.984
		97.5% Chebyshev(Mean, Sd) UCL	6.953
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.856
95% Approximate Gamma UCL (Use when n >= 40)	4.935		
95% Adjusted Gamma UCL (Use when n < 40)	5.241		

Potential UCL to Use		Use 95% Student's-t UCL	4.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

PROUCL OUTPUT - SUBSURFACE SOIL

Iron

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	7
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	4900	Minimum of Log Data	8.497
Maximum	18000	Maximum of Log Data	9.798
Mean	10444	Mean of log Data	9.159
Geometric Mean	9503	SD of log Data	0.471
Median	11000		
SD	4618		
Std. Error of Mean	1539		
Coefficient of Variation	0.442		
Skewness	0.252		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.908	Shapiro Wilk Test Statistic	0.903
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13307	95% H-UCL	15322
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17739
95% Adjusted-CLT UCL (Chen-1995)	13115	97.5% Chebyshev (MVUE) UCL	20882
95% Modified-t UCL (Johnson-1978)	13329	99% Chebyshev (MVUE) UCL	27054

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.709	**Data appear Normal at 5% Significance Level**	
Theta Star	2816		
MLE of Mean	10444		
MLE of Standard Deviation	5423		
nu star	66.76		
Approximate Chi Square Value (.05)	48.96	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	12977
Adjusted Chi Square Value	45.76	95% Jackknife UCL	13307
		95% Standard Bootstrap UCL	12805
Anderson-Darling Test Statistic	0.487	95% Bootstrap-t UCL	13639
Anderson-Darling 5% Critical Value	0.723	95% Hall's Bootstrap UCL	12824
Kolmogorov-Smirnov Test Statistic	0.202	95% Percentile Bootstrap UCL	12678
Kolmogorov-Smirnov 5% Critical Value	0.28	95% BCA Bootstrap UCL	12900

PROUCL OUTPUT - SUBSURFACE SOIL

Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	17155
		97.5% Chebyshev(Mean, Sd) UCL	20059
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25762
95% Approximate Gamma UCL (Use when n >= 40)	14243		
95% Adjusted Gamma UCL (Use when n < 40)	15238		
Potential UCL to Use		Use 95% Student's-t UCL	13307

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX D-3

SAMPLE CALCULATIONS

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, DECEMBER 1989		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of surface soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1E-06 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	7.1	mg/kg	Chemical: Arsenic
IR	=	200	mg/day	
EF	=	150	days/year	
ED	=	6	years	
FI	=	0.5		
CF	=	1E-06	kg/mg	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2190	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-04	(mg/kg/day)	

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, DECEMBER 1989		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{7.1\ mg/kg \times 200\ mg/day \times 150\ days/year \times 6\ years \times 0.5 \times 1E\text{-}06\ kg/mg}{15\ kg \times 25550\ days}$$

IEXc = 1.67E-06 mg/kg/day

ILCR = 1.67E-06 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.5E-06

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{7.1\ mg/kg \times 200\ mg/day \times 150\ days/year \times 6\ years \times 0.5 \times 1E\text{-}06\ kg/mg}{15\ kg \times 2190\ days}$$

IEXnc = 1.95E-05 mg/kg/day

HQ = 1.95E-05 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 6.5E-02

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, JULY 2004		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with surface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1E-06 kg/mg)
SA	=	skin surface available for contact (cm2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	7.1	mg/kg	Chemical: Arsenic
CF	=	1E-06	kg/mg	
SA	=	2,800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.03		
EF	=	150	days/year	
ED	=	6	years	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2190	days	
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDd	=	3.0E-04	(mg/kg/day)	

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, JULY 2004		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{7.1\ mg/kg \times 1E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.03 \times 150\ days/year \times 6\ years}{15\ kg \times 25550\ days}$$

DEXc = 2.80E-07 mg/kg/day

ILCR = 2.80E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 4.2E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{7.1\ mg/kg \times 1E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.03 \times 150\ days/year \times 6\ years}{15\ kg \times 2190\ days}$$

DEXnc = 3.27E-06 mg/kg/day

HQ = 3.27E-06 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 1.1E-02

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, JANUARY 2009		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Cs	=	7.1	mg/kg	Chemical: Arsenic
PEF	=	1.10E+10	m3/kg	
Ca	=	6.45E-10	mg/m3	
ET	=	4	hours/day	
EF	=	150	days/year	
ED	=	6	years	
ATc	=	25,550	days	
ATnc	=	2,190	days	
IUR	=	4.3E-03	$(ug/m3)^{-1}$	
RfC	=	1.5E-05	(mg/m3)	

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS CHILD COMMERCIAL RECEPTORS		
BASED ON: USEPA, JANUARY 2009		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{6.45E\text{-}10\ mg/m3 \times 4\ hours/day \times 150\ days/year \times 6\ years}{25550\ days \times 24\ hours/day}$$

IEXc = 3.79E-12 mg/m3

ILCR = 3.79E-12 mg/m3 x 4.30E-03 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 1.6E-11

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{6.45E\text{-}10\ mg/m3 \times 4\ hours/day \times 150\ days/year \times 6\ years}{2190\ days \times 24\ hours/day}$$

IEXnc = 4.42E-11 mg/m3

HQ = 4.42E-11 mg/m3 / 1.50E-05 (mg/m3) = Hazard Quotient

HQ **2.9E-06**

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF THE PARTICULATE EMISSION FACTOR (PEF) FOR RESIDENTIAL AND COMMERCIAL EXPOSURES		
BASED ON: SUPPLEMENTAL GUIDANCE FOR DEVELOPING SOIL SCREENING LEVELS FOR SUPERFUND SITES (USEPA, DECEMBER, 2002)		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To calculate the particulate emission factor for residential and commercial exposure scenarios.

EQUATIONS:

$$PEF = Q/C_{wind} \times \frac{3600 \text{ sec/hr}}{0.036 \times (1 - V) \times (U_m/U_t)^3 \times F(x)}$$

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

Where:

PEF	=	particulate emission factor (m^3/kg)
Q/C_{wind}	=	Inverse of mean conc. at center of source (g/m^2-s per kg/m^3).
V	=	fraction of vegetative cover (unitless)
U_m	=	mean annual wind speed (m/sec)
U_t	=	equivalent threshold value of wind speed at 7m (m/sec)
F(x)	=	function dependent on Um/Ut derived using Cowherd et al. (1985) (unitless)
A,B,C	=	constants based on air dispersion modeling for specific climate zones
A_{site}	=	areal extent of the site or contamination (acres)

ASSUMPTIONS:

V	=	0.5	unitless	
U_m	=	3.84	m/sec	Values are for Hartford, Connecticut.
U_t	=	11.32	m/sec	
F(x)	=	0.0345	unitless	
A	=	12.5907	unitless	
B	=	18.8368	unitless	
C	=	215.4377	unitless	
A_{site}	=	0.5	acres	

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF THE PARTICULATE EMISSION FACTOR (PEF) FOR RESIDENTIAL AND COMMERCIAL EXPOSURES		
BASED ON: SUPPLEMENTAL GUIDANCE FOR DEVELOPING SOIL SCREENING LEVELS FOR SUPERFUND SITES (USEPA, DECEMBER, 2002)		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CALCULATION FOR Q/C_{wind}

Q/C_{wind} = 12.5907 x exp[(ln(0.5) - 18.8368)^2 / 215.4377]

Q/C_{wind} = 73.95045 g/m2-s per kg/m3

EXAMPLE CALCULATION FOR PEF

$$PEF = 73.95045 \text{ g/m2-s per kg/m3} \times \frac{3600 \text{ sec/hr}}{0.036 \times (1 - 0.5) \times (3.84 \text{ m/sec} / 11.32 \text{ m/sec})^3 \times 0.0345}$$

PEF = 1.10E+10 m^3/kg

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
IR	=	200	mg/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{3.8\ mg/kg \times 200\ mg/day \times 350\ days/year \times 2\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 10$$

IEX_1 = 1.39E-05 mg/kg/day

$$IEX_2 = \frac{3.8\ mg/kg \times 200\ mg/day \times 350\ days/year \times 4\ years \times 1 \times 1.0E\text{-}06\ kg/mg}{15\ kg \times 25550\ days} \times 3$$

IEX_2 = 8.33E-06 mg/kg/day

ILCR = (1.39E-05 mg/kg/day + 8.33E-06 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.6E-04

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with surface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
CF	=	1.0E-06	kg/mg	
SA	=	2,800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
BW	=	15	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{3.8\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 2\ years}{15\ kg \times 25550\ days} \times 10$$

DEXc = 5.05E-06 mg/kg/day

$$DEXc = \frac{3.8\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 4\ years}{15\ kg \times 25550\ days} \times 3$$

DEXc = 3.03E-06 mg/kg/day

ILCR = (5.05E-06 mg/kg/day + 3.03E-06 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 5.9E-05

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IUR	=	inhalation unit risk$((ug/mg)^{-1})$

RISKS:

ILCR = Exposure concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
PEF	=	1.10E+10	m3/kg	
Ca	=	3.45E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{3.45E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 2\ years}{25550\ days \times 24\ hours/day} \times 10$$

EC = 9.46E-11 mg/m3

$$EC = \frac{3.45E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 4\ years}{25550\ days \times 24\ hours/day} \times 3$$

EC = 5.68E-11 mg/m3

ILCR = (9.46E-11 mg/m3 + 5.68E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 1.7E-10

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
IR	=	100	mg/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{3.8 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 10 \text{ years} \times 1 \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 3$$

IEX_1 = 2.23E-06 mg/kg/day

$$IEX_2 = \frac{3.8 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 14 \text{ years} \times 1 \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 1$$

IEX_2 = 1.04E-06 mg/kg/day

ILCR = (2.23E-06 mg/kg/day + 1.04E-06 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 2.4E-05

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with surface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
CF	=	1.0E-06	kg/mg	
SA	=	5,700	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
BW	=	70	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{3.8\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5700\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 350\ days/year \times 10\ years}{70\ kg \times 25550\ days} \times 3$$

DEXc = 1.16E-06 mg/kg/day

$$DEXc = \frac{3.8\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 5700\ cm2/day \times 0.07\ mg/cm2 \times 0.13 \times 350\ days/year \times 14\ years}{70\ kg \times 25550\ days} \times 1$$

DEXc = 5.40E-07 mg/kg/day

ILCR = (1.16E-06 mg/kg/day + 5.40E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.2E-05

CALCULATION WORKSHEET

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure intake (mg/kg/day)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IURi	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	3.8	mg/kg	Chemical: Benzo(a)pyrene Equivalents
PEF	=	1.10E+10	m3/kg	
Ca	=	3.45E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS		**JOB NUMBER:** 112G02073
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: L. CIOFANI	**CHECKED BY:**	**DATE:** 3/27/2013

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{3.45E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 10\ years}{25550\ days \times 24\ hours/day} \times 3$$

EC = 1.42E-10 mg/m3

$$EC = \frac{3.45E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 14\ years}{25550\ days \times 24\ hours/day} \times 1$$

EC = 6.63E-11 mg/m3

ILCR = (1.42E-10 mg/m3 + 6.63E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 2.3E-10

APPENDIX D-4

LOCATION-BY-LOCATION RISK ESTIMATES

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU01	EU01	EU01	EU02	EU03	EU04	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	1
BOTTOM DEPTH	2	2	2	2	2	2	3

BAP EQUIVALENT-HALFND	UG/KG	445 J	373 J	301 J	94 UJ	164 J	227 J	360 U
AROCLOR-1260	UG/KG	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J	
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG	4400	4600	4800	5400	6600	4400	
ARSENIC	MG/KG	1.5	1.6	1.7	1	1.1	1.7	2
CHROMIUM	MG/KG	5.5	5.6	5.7	5.9	15	7.4	7.8
COBALT	MG/KG	3.2	3.15	3.1	2.8	3.5	2.9	
IRON	MG/KG	9800	10400	11000	9600	12000	11000	
LEAD	MG/KG	16 J	15 J	14 J	6 J	9 J	5.3 J	7.3
MANGANESE	MG/KG	310 J	290 J	270 J	140 J	180 J	160 J	
TEQ HALFND	NG/KG							

Child Residents	Unit Risk							
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	2.4E-02	1.5E-02	6.2E-03	3.2E-03	8.5E-03	6.5E-03	0.0E+00
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	5.7E-02	6.0E-02	6.2E-02	7.0E-02	8.6E-02	5.7E-02	0.0E+00
ARSENIC	4.5E-02	6.8E-02	7.3E-02	7.7E-02	4.5E-02	5.0E-02	7.7E-02	9.1E-02
CHROMIUM	4.3E-03	2.4E-02	2.4E-02	2.5E-02	2.6E-02	6.5E-02	3.2E-02	3.4E-02
COBALT	4.3E-02	1.4E-01	1.4E-01	1.3E-01	1.2E-01	1.5E-01	1.3E-01	0.0E+00
IRON	1.8E-05	1.8E-01	1.9E-01	2.0E-01	1.7E-01	2.2E-01	2.0E-01	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	1.7E-01	1.6E-01	1.5E-01	7.8E-02	1.0E-01	8.9E-02	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	6.6E-01	6.6E-01	6.6E-01	5.2E-01	6.8E-01	5.9E-01	1.2E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	1	1	1	1	1	1	1
BOTTOM DEPTH	3	3	3	3	3	3	3
BAP EQUIVALENT-HALFND	UG/KG	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
AROCLOR-1260	UG/KG							
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG							
ARSENIC	MG/KG	1.8	1.6			0.98	1.29	1.6
CHROMIUM	MG/KG	6.45	5.1			7.2	7.95	8.7
COBALT	MG/KG							
IRON	MG/KG							
LEAD	MG/KG	7.5	7.7	6.3	10.6	4.6	4.9	5.2
MANGANESE	MG/KG							
TEQ HALFND	NG/KG							

Child Residents	Unit Risk							
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	8.2E-02	7.3E-02	0.0E+00	0.0E+00	4.5E-02	5.9E-02	7.3E-02
CHROMIUM	4.3E-03	2.8E-02	2.2E-02	0.0E+00	0.0E+00	3.1E-02	3.5E-02	3.8E-02
COBALT	4.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.1E-01	9.5E-02	0.0E+00	0.0E+00	7.6E-02	9.3E-02	1.1E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU05	EU06	EU07	EU07	EU08	EU08	EU08
LOCATION ID		B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308
SAMPLE ID		B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025
MATRIX		SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19990614	20110809	20110809	20031015	20021104	20021104	20021104
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		1	0	0	0.5	0	0.5	0
BOTTOM DEPTH		2	2	2	1.5	0.5	1	0.5
BAP EQUIVALENT-HALFND	UG/KG	190 U	501 J	161 J			96.7 J	
AROCLOR-1260	UG/KG	18 U	150		290	96 J	20 J	1800
HEPTACHLOR EPOXIDE	UG/KG						0.83 U	
ALUMINUM	MG/KG	7890	5500	7400			2800 J	
ARSENIC	MG/KG	2	0.89	2.4			5.2	
CHROMIUM	MG/KG	8.5	6.9	9.5			5.8	
COBALT	MG/KG	5.4 U	2.7	5.5			1.9 U	
IRON	MG/KG	9740	11000	17000			10000	
LEAD	MG/KG	12	16 J	11 J			6.8	
MANGANESE	MG/KG	113	170 J	330 J			68	
TEQ HALFND	NG/KG			1.32 J				

Child Residents	Unit Risk							
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	8.0E-03	1.3E-01	0.0E+00	2.6E-01	8.5E-02	1.8E-02	1.6E+00
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-04	0.0E+00
ALUMINUM	1.3E-05	1.0E-01	7.1E-02	9.6E-02	0.0E+00	0.0E+00	3.6E-02	0.0E+00
ARSENIC	4.5E-02	9.1E-02	4.0E-02	1.1E-01	0.0E+00	0.0E+00	2.4E-01	0.0E+00
CHROMIUM	4.3E-03	3.7E-02	3.0E-02	4.1E-02	0.0E+00	0.0E+00	2.5E-02	0.0E+00
COBALT	4.3E-02	1.2E-01	1.2E-01	2.4E-01	0.0E+00	0.0E+00	4.1E-02	0.0E+00
IRON	1.8E-05	1.8E-01	2.0E-01	3.1E-01	0.0E+00	0.0E+00	1.8E-01	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	6.3E-02	9.4E-02	1.8E-01	0.0E+00	0.0E+00	3.8E-02	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	1.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	6.0E-01	6.9E-01	1.0E+00	2.6E-01	8.5E-02	5.8E-01	1.6E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330	SB07-331
SAMPLE ID	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031	SB07-331-NSO-0716030
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20021104	20021104	20030716	20021104	20030716	20030716	20030716
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0.5	0	0.5	0.5	0.5	0	1	0
BOTTOM DEPTH	1	0.5	1	1	1	1	2	1
BAP EQUIVALENT-HALFND	UG/KG	52.3 J		621 J					
AROCLOR-1260	UG/KG	160	250	220		170	11 J	31	18 J
HEPTACHLOR EPOXIDE	UG/KG	0.85 U		0.84 U					
ALUMINUM	MG/KG	7500 J		8100 J					
ARSENIC	MG/KG	3.4		2.9	4.5				
CHROMIUM	MG/KG	12		11	5.5				
COBALT	MG/KG	7.4		6.3 J					
IRON	MG/KG	15000		15000					
LEAD	MG/KG	40		25	6				
MANGANESE	MG/KG	350		370					
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.4E-01	2.2E-01	2.0E-01	0.0E+00	1.5E-01	9.8E-03	2.8E-02	1.6E-02
HEPTACHLOR EPOXIDE	1.3E-03	5.4E-04	0.0E+00	5.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	9.7E-02	0.0E+00	1.1E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	1.5E-01	0.0E+00	1.3E-01	2.0E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	4.3E-03	5.2E-02	0.0E+00	4.8E-02	2.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	4.3E-02	3.2E-01	0.0E+00	2.7E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	2.7E-01	0.0E+00	2.7E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	1.9E-01	0.0E+00	2.1E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.2E+00	2.2E-01	1.2E+00	2.3E-01	1.5E-01	9.8E-03	2.8E-02	1.6E-02

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12
LOCATION ID	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12
SAMPLE ID	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	1	0.5	0	1	1	0	0	0
BOTTOM DEPTH	2	1.5	2	3	2	2	1	2

BAP EQUIVALENT-HALFND	UG/KG			346 J	360 U	410 U		79.9 J	185 J
AROCLOR-1260	UG/KG	26 U	4.1 J	470			12000	440 J	7.2 U
HEPTACHLOR EPOXIDE	UG/KG							4 J	
ALUMINUM	MG/KG			5600				6900 J	7600
ARSENIC	MG/KG			1.4				3.4	1.2
CHROMIUM	MG/KG			8.1				11	9.2
COBALT	MG/KG			2.8				6	3.9
IRON	MG/KG			11000				10000 J	13000
LEAD	MG/KG			36 J	9			23	11
MANGANESE	MG/KG			180 J				210	220 J
TEQ HALFND	NG/KG			13.4 J					

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.2E-02	3.6E-03	4.2E-01	0.0E+00	0.0E+00	1.1E+01	3.9E-01	3.2E-03
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.1E-03	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	7.3E-02	0.0E+00	0.0E+00	0.0E+00	9.0E-02	9.9E-02
ARSENIC	4.5E-02	0.0E+00	0.0E+00	6.4E-02	0.0E+00	0.0E+00	0.0E+00	1.5E-01	5.5E-02
CHROMIUM	4.3E-03	0.0E+00	0.0E+00	3.5E-02	0.0E+00	0.0E+00	0.0E+00	4.8E-02	4.0E-02
COBALT	4.3E-02	0.0E+00	0.0E+00	1.2E-01	0.0E+00	0.0E+00	0.0E+00	2.6E-01	1.7E-01
IRON	1.8E-05	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	0.0E+00	1.8E-01	2.4E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	1.0E-01	0.0E+00	0.0E+00	0.0E+00	1.2E-01	1.2E-01
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	1.9E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.2E-02	3.6E-03	1.2E+00	0.0E+00	0.0E+00	1.1E+01	1.2E+00	7.2E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU13	EU14	EU14	EU15	EU15	EU15	EU15	EU15
LOCATION ID		IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15	IOA-SS-EU15	SB07-305	SB07-305
SAMPLE ID		IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	ORIG
SAMPLE DATE		20110809	20110809	20021104	20110809	20110809	20110809	20021104	20021104
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0.5	0	0	0	0	0.5
BOTTOM DEPTH		2	2	1	2	2	2	0.5	1
BAP EQUIVALENT-HALFND	UG/KG	257 J		391					136 J
AROCLOR-1260	UG/KG	18 J		170				17 J	230
HEPTACHLOR EPOXIDE	UG/KG								0.85 U
ALUMINUM	MG/KG	6600	4900						4900 J
ARSENIC	MG/KG	1.3	1.9						3.7
CHROMIUM	MG/KG	8.6	6.3						9.6
COBALT	MG/KG	1.4	2.5						2.8 J
IRON	MG/KG	6100	11000						9600
LEAD	MG/KG	27 J	13 J						45
MANGANESE	MG/KG	75 J	150 J						100
TEQ HALFND	NG/KG	6 J			3.92 J	3.72 J	3.53 J		

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.6E-02	0.0E+00	1.5E-01	0.0E+00	0.0E+00	0.0E+00	1.5E-02	2.0E-01
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-04
ALUMINUM	1.3E-05	8.6E-02	6.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-02
ARSENIC	4.5E-02	5.9E-02	8.6E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-01
CHROMIUM	4.3E-03	3.7E-02	2.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-02
COBALT	4.3E-02	6.1E-02	1.1E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01
IRON	1.8E-05	1.1E-01	2.0E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	4.2E-02	8.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-02
TEQ HALFND	1.4E-02	8.3E-02	0.0E+00	0.0E+00	5.4E-02	5.2E-02	4.9E-02	0.0E+00	0.0E+00
	Total	4.9E-01	5.7E-01	1.5E-01	5.4E-02	5.2E-02	4.9E-02	1.5E-02	8.3E-01

Red shading = total greater than 1
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326	SB07-327
SAMPLE ID	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20021104	20021104	20021104	20021104	20030716	20030716	20030716
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0.5	0.5	0	0.5	0.5	1	1.5	1
BOTTOM DEPTH	1	1	0.5	1	1	1.5	2	1.5

BAP EQUIVALENT-HALFND	UG/KG	114 J	92.8 J		83.6 J	124			
AROCLOR-1260	UG/KG	215	200	170	49	1000 J	1500	12 J	2900
HEPTACHLOR EPOXIDE	UG/KG	0.85 U			0.82 U				
ALUMINUM	MG/KG	4450 J	4000 J		2600 J				
ARSENIC	MG/KG	4.6	5.5		5.2				
CHROMIUM	MG/KG	8.85	8.1		6				
COBALT	MG/KG	2 J	2.4 U		1.7 U				
IRON	MG/KG	10300	11000		8800				
LEAD	MG/KG	36	27		6.4				
MANGANESE	MG/KG	97	94		60				
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.9E-01	1.8E-01	1.5E-01	4.4E-02	8.9E-01	1.3E+00	1.1E-02	2.6E+00
HEPTACHLOR EPOXIDE	1.3E-03	5.4E-04	0.0E+00	0.0E+00	5.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	5.8E-02	5.2E-02	0.0E+00	3.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	2.1E-01	2.5E-01	0.0E+00	2.4E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	4.3E-03	3.8E-02	3.5E-02	0.0E+00	2.6E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	4.3E-02	8.7E-02	5.2E-02	0.0E+00	3.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	1.9E-01	2.0E-01	0.0E+00	1.6E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	5.4E-02	5.2E-02	0.0E+00	3.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	8.3E-01	8.2E-01	1.5E-01	5.7E-01	8.9E-01	1.3E+00	1.1E-02	2.6E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-327	SB07-328	SB07-328	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338
SAMPLE ID	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20030716	20030716	20030716	20031015	20031015	20031015
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	1.5	0	1	0	1	1	0.5	0.5
BOTTOM DEPTH	2	1	2	1	2	1.5	1.5	1.5

BAP EQUIVALENT-HALFND	UG/KG								
AROCLOR-1260	UG/KG	14 J	72	500	1200	600	28 U	330	24 J
HEPTACHLOR EPOXIDE	UG/KG								
ALUMINUM	MG/KG								
ARSENIC	MG/KG								
CHROMIUM	MG/KG								
COBALT	MG/KG								
IRON	MG/KG								
LEAD	MG/KG								
MANGANESE	MG/KG								
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.2E-02	6.4E-02	4.4E-01	1.1E+00	5.3E-01	1.2E-02	2.9E-01	2.1E-02
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	4.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	4.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.2E-02	6.4E-02	4.4E-01	1.1E+00	5.3E-01	1.2E-02	2.9E-01	2.1E-02

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU16	EU17	EU18	EU18	EU19	EU20	EU21	EU21
LOCATION ID	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008
SAMPLE ID	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	19981221	20010515	20110811	19981216	20110811	19981216
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	1	1	2	1	2	1

BAP EQUIVALENT-HALFND	UG/KG	495 J	318 J	87.7 J		78.4 J	58.1 J		61.8 J
AROCLOR-1260	UG/KG	300	1800	480 J	120	7.4 U		7.6 U	
HEPTACHLOR EPOXIDE	UG/KG			8.4 J					
ALUMINUM	MG/KG	10000	6100	5110 J		7400	5280 J		6620 J
ARSENIC	MG/KG	1.3	1.2	2.1		5.9	1.8 J		1.9 J
CHROMIUM	MG/KG	13	12	7.7		8.9	6.1 J		7.2 J
COBALT	MG/KG	2.8	2.8	2.2 J		3.9	4.6		4
IRON	MG/KG	9900	15000	9160 J		10000	11500 J		10700 J
LEAD	MG/KG	56 J	69 J	17.3 J		27	8 J		16.5 J
MANGANESE	MG/KG	160 J	390 J	96.7 J		180 J	357 J		191 J
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	2.7E-01	1.6E+00	4.3E-01	1.1E-01	3.3E-03	0.0E+00	3.4E-03	0.0E+00
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	1.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	1.3E-01	7.9E-02	6.6E-02	0.0E+00	9.6E-02	6.9E-02	0.0E+00	8.6E-02
ARSENIC	4.5E-02	5.9E-02	5.5E-02	9.5E-02	0.0E+00	2.7E-01	8.2E-02	0.0E+00	8.6E-02
CHROMIUM	4.3E-03	5.7E-02	5.2E-02	3.3E-02	0.0E+00	3.9E-02	2.7E-02	0.0E+00	3.1E-02
COBALT	4.3E-02	1.2E-01	1.2E-01	9.6E-02	0.0E+00	1.7E-01	2.0E-01	0.0E+00	1.7E-01
IRON	1.8E-05	1.8E-01	2.7E-01	1.7E-01	0.0E+00	1.8E-01	2.1E-01	0.0E+00	1.9E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	8.9E-02	2.2E-01	5.4E-02	0.0E+00	1.0E-01	2.0E-01	0.0E+00	1.1E-01
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	9.0E-01	2.4E+00	9.5E-01	1.1E-01	8.6E-01	7.8E-01	3.4E-03	6.8E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU22	EU22	EU23	EU24	EU26	EU26	EU26	EU26
LOCATION ID	IOA-SS-EU22	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010
SAMPLE ID	IOA-SS-EU22-0002	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	19981216	20110810	20030725	19960730	19960731	19960802	19981209
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	1	1	1	0
BOTTOM DEPTH	2	1	2	1	3	3	2.2	1

BAP EQUIVALENT-HALFND	UG/KG		15 J	186 J	260 U	268 J	350 U	246 J	480 J
AROCLOR-1260	UG/KG	10 J		8 J	31 J				35 U
HEPTACHLOR EPOXIDE	UG/KG				0.81 U				6.2 J
ALUMINUM	MG/KG		7330 J	6800	5600				7620 J
ARSENIC	MG/KG		1.9 J	2.2	3 J				3 J
CHROMIUM	MG/KG		8	7.5	6.8				12
COBALT	MG/KG		3.4	3.4	3.9 J				4.5
IRON	MG/KG		11900 J	12000	11000				13200 J
LEAD	MG/KG		29.8 J	26	10				28.9
MANGANESE	MG/KG		185 J	150 J	210				156 J
TEQ HALFND	NG/KG				0.612				6.85 R

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	8.9E-03	0.0E+00	7.1E-03	2.8E-02	0.0E+00	0.0E+00	0.0E+00	1.6E-02
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	5.1E-04	0.0E+00	0.0E+00	0.0E+00	7.8E-03
ALUMINUM	1.3E-05	0.0E+00	9.5E-02	8.8E-02	7.3E-02	0.0E+00	0.0E+00	0.0E+00	9.9E-02
ARSENIC	4.5E-02	0.0E+00	8.6E-02	1.0E-01	1.4E-01	0.0E+00	0.0E+00	0.0E+00	1.4E-01
CHROMIUM	4.3E-03	0.0E+00	3.5E-02	3.3E-02	3.0E-02	0.0E+00	0.0E+00	0.0E+00	5.2E-02
COBALT	4.3E-02	0.0E+00	1.5E-01	1.5E-01	1.7E-01	0.0E+00	0.0E+00	0.0E+00	2.0E-01
IRON	1.8E-05	0.0E+00	2.2E-01	2.2E-01	2.0E-01	0.0E+00	0.0E+00	0.0E+00	2.4E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	1.0E-01	8.3E-02	1.2E-01	0.0E+00	0.0E+00	0.0E+00	8.7E-02
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	8.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	8.9E-03	6.8E-01	6.8E-01	7.6E-01	0.0E+00	0.0E+00	0.0E+00	8.3E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU26	EU26	EU27	EU27	EU27	EU28	EU28	EU28
LOCATION ID	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN	AOC13-S1-SWW
SAMPLE ID	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN	S1SWW
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981209	20030716	19960805	19960805	20110810	20040311	20040311	20040311
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	1	1	0	0	0	0
BOTTOM DEPTH	1	1	3	3	2	1	1	1
BAP EQUIVALENT-HALFND	UG/KG	89.5 J		390 U	520 U		22 U	21 U	22 U
AROCLOR-1260	UG/KG	34 U				7.3 U			
HEPTACHLOR EPOXIDE	UG/KG	1.7 U							
ALUMINUM	MG/KG	7100 J				7100			
ARSENIC	MG/KG	2.1				2.1			
CHROMIUM	MG/KG	9.1 J				9.4			
COBALT	MG/KG	4.6				4.4			
IRON	MG/KG	13100 J				14000			
LEAD	MG/KG	8.7 J				25 J			
MANGANESE	MG/KG	233 J				140 J			
TEQ HALFND	NG/KG	1.65	5.44			2.98 J			

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.5E-02	0.0E+00	0.0E+00	0.0E+00	3.2E-03	0.0E+00	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.3E-03	1.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	9.2E-02	0.0E+00	0.0E+00	0.0E+00	9.2E-02	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	9.5E-02	0.0E+00	0.0E+00	0.0E+00	9.5E-02	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	4.3E-03	4.0E-02	0.0E+00	0.0E+00	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00
COBALT	4.3E-02	2.0E-01	0.0E+00	0.0E+00	0.0E+00	1.9E-01	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	2.4E-01	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	1.3E-01	0.0E+00	0.0E+00	0.0E+00	7.8E-02	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	2.3E-02	7.6E-02	0.0E+00	0.0E+00	4.1E-02	0.0E+00	0.0E+00	0.0E+00
	Total	8.3E-01	7.6E-02	0.0E+00	0.0E+00	8.0E-01	0.0E+00	0.0E+00	0.0E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01
SAMPLE ID	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE	20040311	20040311	20040311	20040311	20040311	20040929	20040929	20040929
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	1	1	1

BAP EQUIVALENT-HALFND	UG/KG	75.2 J	141 J	206 J	22.5 J	46.1 J	40.7 J	92.4 J	144 J
AROCLOR-1260	UG/KG								
HEPTACHLOR EPOXIDE	UG/KG								
ALUMINUM	MG/KG								
ARSENIC	MG/KG								
CHROMIUM	MG/KG								
COBALT	MG/KG								
IRON	MG/KG								
LEAD	MG/KG								
MANGANESE	MG/KG								
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	4.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	4.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	1.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU28	EU28	EU28	EU28	EU28	EU28	EU29	EU29
LOCATION ID	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001	SB06-002	IOA-SS-EU29	IOA-SS-EU29
SAMPLE ID	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20040929	20040930	20040930	20110809	19981208	19981208	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	2	1	1	2	2
BAP EQUIVALENT-HALFND	UG/KG	23 U	21 U	413		6710 J	15600 J	1880 J	1920 J
AROCLOR-1260	UG/KG					34 U	35 U	59	61
HEPTACHLOR EPOXIDE	UG/KG					63 J	200 J		
ALUMINUM	MG/KG					4740 J	5230 J	7800	6900
ARSENIC	MG/KG					2.6	4.1	6.4	5.7
CHROMIUM	MG/KG					11.9	18.7	14	12
COBALT	MG/KG					3.4	4	3	2.55
IRON	MG/KG					11100	13200	21000	19000
LEAD	MG/KG					90.7	114	20 J	16 J
MANGANESE	MG/KG					209	294	100 J	92 J
TEQ HALFND	NG/KG				3.85 J				

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-02	1.6E-02	5.3E-02	5.4E-02
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-02	2.5E-01	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-02	6.8E-02	1.0E-01	9.0E-02
ARSENIC	4.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	1.9E-01	2.9E-01	2.6E-01
CHROMIUM	4.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.2E-02	8.1E-02	6.1E-02	5.2E-02
COBALT	4.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-01	1.7E-01	1.3E-01	1.1E-01
IRON	1.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-01	2.4E-01	3.8E-01	3.5E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	1.6E-01	5.6E-02	5.1E-02
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	5.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	0.0E+00	0.0E+00	0.0E+00	5.3E-02	7.9E-01	1.2E+00	1.1E+00	9.6E-01

Red shading = total greater than 1
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34
LOCATION ID	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34
SAMPLE ID	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110811	20110811	20110811	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG	1960 J	154 J	95 UJ	47.4 J	43.8 J	40.2 J	75.1 J	85.9 J
AROCLOR-1260	UG/KG	63	86	150	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U
HEPTACHLOR EPOXIDE	UG/KG								
ALUMINUM	MG/KG	6000	13000	7000	4800	4650	4500	7100	7600
ARSENIC	MG/KG	5	1.5	2.2	1.1	1.15	1.2	1.7	1.6
CHROMIUM	MG/KG	10	17	10	6.2	5.7	5.2	7	8.2
COBALT	MG/KG	2.1	3.9	4.1	3.7	3.65	3.6	4.3	5.6
IRON	MG/KG	17000	16000	18000	8800	8450	8100	15000	22000
LEAD	MG/KG	12 J	9.3 J	10 J	7.1	6.8	6.5	10	9.9
MANGANESE	MG/KG	84 J	200 J	440 J	210 J	220 J	230 J	240 J	380 J
TEQ HALFND	NG/KG								

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	5.6E-02	7.7E-02	1.3E-01	3.3E-03	3.4E-03	3.4E-03	3.2E-03	3.5E-03
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	7.8E-02	1.7E-01	9.1E-02	6.2E-02	6.0E-02	5.8E-02	9.2E-02	9.9E-02
ARSENIC	4.5E-02	2.3E-01	6.8E-02	1.0E-01	5.0E-02	5.2E-02	5.5E-02	7.7E-02	7.3E-02
CHROMIUM	4.3E-03	4.3E-02	7.4E-02	4.3E-02	2.7E-02	2.5E-02	2.3E-02	3.0E-02	3.6E-02
COBALT	4.3E-02	9.1E-02	1.7E-01	1.8E-01	1.6E-01	1.6E-01	1.6E-01	1.9E-01	2.4E-01
IRON	1.8E-05	3.1E-01	2.9E-01	3.3E-01	1.6E-01	1.5E-01	1.5E-01	2.7E-01	4.0E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	4.7E-02	1.1E-01	2.4E-01	1.2E-01	1.2E-01	1.3E-01	1.3E-01	2.1E-01
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	8.5E-01	9.6E-01	1.1E+00	5.8E-01	5.8E-01	5.7E-01	8.0E-01	1.1E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU35	EU36	EU37	EU37	EU37	EU37	EU37	EU37
LOCATION ID	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009
SAMPLE ID	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
SAMPLE DATE	20110810	20110810	20110809	19981124	19981208	19981208	19981208	19981208
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	1	1	1	1	1
BAP EQUIVALENT-HALFND	UG/KG	30.5 J	648 J		1800 U	311 J	602 J	893 J	224 J
AROCLOR-1260	UG/KG	7.1 U	7.6 U		35 U	35 U	35.5 U	36 U	36 U
HEPTACHLOR EPOXIDE	UG/KG				1.7 U	9.6 J	8.7 J	7.8 J	12 J
ALUMINUM	MG/KG	6500	9400		7380 J	6960 J	6620 J	6280 J	4470 J
ARSENIC	MG/KG	1.2	2.3		4.4 J	3.1	3.85	4.6	0.81 J
CHROMIUM	MG/KG	9	15		10.6	11.8	11.1	10.4	7.6
COBALT	MG/KG	3.6	4.9		3.6	3.8	3.55	3.3	4
IRON	MG/KG	12000	18000		14700	12100	11600	11100	6660
LEAD	MG/KG	8.2	32		8.5 J	62.9	60.2	57.5	11.7
MANGANESE	MG/KG	200 J	350 J		150 J	127	135	143	92.5 J
TEQ HALFND	NG/KG		2.67 J	1.65 J					

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	3.2E-03	3.4E-03	0.0E+00	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	1.1E-03	1.2E-02	1.1E-02	9.9E-03	1.5E-02
ALUMINUM	1.3E-05	8.4E-02	1.2E-01	0.0E+00	9.6E-02	9.0E-02	8.6E-02	8.2E-02	5.8E-02
ARSENIC	4.5E-02	5.5E-02	1.0E-01	0.0E+00	2.0E-01	1.4E-01	1.8E-01	2.1E-01	3.7E-02
CHROMIUM	4.3E-03	3.9E-02	6.5E-02	0.0E+00	4.6E-02	5.1E-02	4.8E-02	4.5E-02	3.3E-02
COBALT	4.3E-02	1.6E-01	2.1E-01	0.0E+00	1.6E-01	1.7E-01	1.5E-01	1.4E-01	1.7E-01
IRON	1.8E-05	2.2E-01	3.3E-01	0.0E+00	2.7E-01	2.2E-01	2.1E-01	2.0E-01	1.2E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	1.1E-01	1.9E-01	0.0E+00	8.3E-02	7.1E-02	7.5E-02	7.9E-02	5.1E-02
TEQ HALFND	1.4E-02	0.0E+00	3.7E-02	2.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	6.7E-01	1.1E+00	2.3E-02	8.7E-01	7.7E-01	7.8E-01	7.9E-01	5.1E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39
LOCATION ID	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005
SAMPLE ID	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	1	1	1	2	1	1
BAP EQUIVALENT-HALFND	UG/KG	300 U		3530 J	1220 J	2.2 UJ		328 J	1560 J
AROCLOR-1260	UG/KG	31 U		35 U	35 U	37 U		36 U	36 U
HEPTACHLOR EPOXIDE	UG/KG	0.99 U		13 J	26 J	1.8 U		2.7 J	21 J
ALUMINUM	MG/KG	5900		5230 J	5680 J	8950 J		5230 J	8890 J
ARSENIC	MG/KG	11 J		10.4	7.3	2.8		1.7	8.1
CHROMIUM	MG/KG	9.5		12.3	10.9	9.2 J		6.8	149
COBALT	MG/KG	2.7 J		3.6	3.6	3.4		2.4 J	5.9
IRON	MG/KG	10000		12200	9970	13400 J		8310	16100
LEAD	MG/KG	7.8		141	75.6	7.7 J		32.1	1280
MANGANESE	MG/KG	66		180	138	157 J		132	207
TEQ HALFND	NG/KG	7.5	0.477 J				9.2 J		

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	1.4E-02	0.0E+00	1.6E-02	1.6E-02	1.6E-02	0.0E+00	1.6E-02	1.6E-02
HEPTACHLOR EPOXIDE	1.3E-03	6.3E-04	0.0E+00	1.6E-02	3.3E-02	1.1E-03	0.0E+00	3.4E-03	2.7E-02
ALUMINUM	1.3E-05	7.7E-02	0.0E+00	6.8E-02	7.4E-02	1.2E-01	0.0E+00	6.8E-02	1.2E-01
ARSENIC	4.5E-02	5.0E-01	0.0E+00	4.7E-01	3.3E-01	1.3E-01	0.0E+00	7.7E-02	3.7E-01
CHROMIUM	4.3E-03	4.1E-02	0.0E+00	5.3E-02	4.7E-02	4.0E-02	0.0E+00	3.0E-02	6.5E-01
COBALT	4.3E-02	1.2E-01	0.0E+00	1.6E-01	1.6E-01	1.5E-01	0.0E+00	1.0E-01	2.6E-01
IRON	1.8E-05	1.8E-01	0.0E+00	2.2E-01	1.8E-01	2.4E-01	0.0E+00	1.5E-01	2.9E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	3.7E-02	0.0E+00	1.0E-01	7.7E-02	8.7E-02	0.0E+00	7.3E-02	1.2E-01
TEQ HALFND	1.4E-02	1.0E-01	6.6E-03	0.0E+00	0.0E+00	0.0E+00	1.3E-01	0.0E+00	0.0E+00
	Total	1.1E+00	6.6E-03	1.1E+00	9.2E-01	7.8E-01	1.3E-01	5.2E-01	1.8E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU39	EU39	EU39	EU40	EU41	EU42	EU43	EU44
LOCATION ID	SS06-020	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44
SAMPLE ID	SS06-020-NSO-102798	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981027	19981027	19981027	20110810	20110810	20110810	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG				7970 J	85.4 J	69.3 J	129 J	81 J
AROCLOR-1260	UG/KG				46	7.4 U	8 U	710	7.6 U
HEPTACHLOR EPOXIDE	UG/KG								
ALUMINUM	MG/KG				10000	9200	11000	7600	6800
ARSENIC	MG/KG				5.3	0.75	2.3	2.1	1.7
CHROMIUM	MG/KG				15	10	9.3	11	7.9
COBALT	MG/KG				3.5	2.6	3.7	4	4.9
IRON	MG/KG				16000	11000	19000	16000	14000
LEAD	MG/KG	550	503	456	100 J	7.1 J	16	35	20
MANGANESE	MG/KG				210 J	130 J	240 J	310 J	390 J
TEQ HALFND	NG/KG							15.2 J	

Child Residents	Unit Risk								
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	0.0E+00	0.0E+00	0.0E+00	4.1E-02	3.3E-03	3.6E-03	6.3E-01	3.4E-03
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	0.0E+00	0.0E+00	0.0E+00	1.3E-01	1.2E-01	1.4E-01	9.9E-02	8.8E-02
ARSENIC	4.5E-02	0.0E+00	0.0E+00	0.0E+00	2.4E-01	3.4E-02	1.0E-01	9.5E-02	7.7E-02
CHROMIUM	4.3E-03	0.0E+00	0.0E+00	0.0E+00	6.5E-02	4.3E-02	4.0E-02	4.8E-02	3.4E-02
COBALT	4.3E-02	0.0E+00	0.0E+00	0.0E+00	1.5E-01	1.1E-01	1.6E-01	1.7E-01	2.1E-01
IRON	1.8E-05	0.0E+00	0.0E+00	0.0E+00	2.9E-01	2.0E-01	3.5E-01	2.9E-01	2.5E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	0.0E+00	0.0E+00	0.0E+00	1.2E-01	7.2E-02	1.3E-01	1.7E-01	2.2E-01
TEQ HALFND	1.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-01	0.0E+00
	Total	0.0E+00	0.0E+00	0.0E+00	1.0E+00	5.9E-01	9.3E-01	1.7E+00	8.9E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.1
LOCATION-BY-LOCATION HAZARD INDICES - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG	469 J	63.6 J	65.2 J	66.8 J	19 UJ	32.2 J	19 UJ
AROCLOR-1260	UG/KG	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG	8000	10000	10000	10000	7900	8500	6400
ARSENIC	MG/KG	7.2	1.4	1.35	1.3	1.3	3.4	36
CHROMIUM	MG/KG	14	11	10.3	9.6	16	9.9	7.9
COBALT	MG/KG	3.8	3.1	2.9	2.7	6.3	5.2	4
IRON	MG/KG	14000	13000	12000	11000	11000	20000	45000
LEAD	MG/KG	320	33	28.5	24	10	8.1	16
MANGANESE	MG/KG	220 J	160 J	145 J	130 J	220 J	310 J	280 J
TEQ HALFND	NG/KG		3.15 J	2.5 J	1.84 J			

Child Residents	Unit Risk							
BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	8.9E-04	5.4E-02	4.4E-03	3.8E-03	3.2E-03	3.4E-03	7.1E-03	3.3E-03
HEPTACHLOR EPOXIDE	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	1.3E-05	1.0E-01	1.3E-01	1.3E-01	1.3E-01	1.0E-01	1.1E-01	8.3E-02
ARSENIC	4.5E-02	3.3E-01	6.4E-02	6.1E-02	5.9E-02	5.9E-02	1.5E-01	1.6E+00
CHROMIUM	4.3E-03	6.1E-02	4.8E-02	4.5E-02	4.2E-02	7.0E-02	4.3E-02	3.4E-02
COBALT	4.3E-02	1.7E-01	1.3E-01	1.3E-01	1.2E-01	2.7E-01	2.3E-01	1.7E-01
IRON	1.8E-05	2.5E-01	2.4E-01	2.2E-01	2.0E-01	2.0E-01	3.6E-01	8.2E-01
LEAD	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	5.6E-04	1.2E-01	8.9E-02	8.1E-02	7.2E-02	1.2E-01	1.7E-01	1.6E-01
TEQ HALFND	1.4E-02	0.0E+00	4.4E-02	3.5E-02	2.6E-02	0.0E+00	0.0E+00	0.0E+00
	Total	1.1E+00	7.5E-01	7.0E-01	6.5E-01	8.3E-01	1.1E+00	2.9E+00

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU01	EU01	EU01	EU02	EU03	EU04	EU05
LOCATION ID	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01
SAMPLE ID	IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	20110809	20110809	20110809	20110809	20110809	20110809	19970312
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	1
BOTTOM DEPTH	2	2	2	2	2	2	3
BAP EQUIVALENT-HALFND	UG/KG	445 J	373 J	301 J	94 UJ	164 J	227 J	360 U
AROCLOR-1260	UG/KG	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J	
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG	4400	4600	4800	5400	6600	4400	
ARSENIC	MG/KG	1.5	1.6	1.7	1	1.1	1.7	2
CHROMIUM	MG/KG	5.5	5.6	5.7	5.9	15	7.4	7.8
COBALT	MG/KG	3.2	3.15	3.1	2.8	3.5	2.9	
IRON	MG/KG	9800	10400	11000	9600	12000	11000	
LEAD	MG/KG	16 J	15 J	14 J	6 J	9 J	5.3 J	7.3
MANGANESE	MG/KG	310 J	290 J	270 J	140 J	180 J	160 J	
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	3.0E-05	2.5E-05	2.0E-05	6.3E-06	1.1E-05	1.5E-05	1.2E-05
AROCLOR-1260	4.5E-09	1.2E-07	7.7E-08	3.2E-08	1.7E-08	4.3E-08	3.3E-08	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	3.8E-06	4.1E-06	4.4E-06	2.6E-06	2.8E-06	4.4E-06	5.1E-06
CHROMIUM	3.4E-06	1.9E-05	1.9E-05	2.0E-05	2.0E-05	5.2E-05	2.6E-05	2.7E-05
COBALT	2.7E-09	8.6E-09	8.5E-09	8.4E-09	7.6E-09	9.5E-09	7.8E-09	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	5.3E-05	4.8E-05	4.4E-05	2.9E-05	6.6E-05	4.5E-05	4.4E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	1	1	1	1	1	1	1
BOTTOM DEPTH	3	3	3	3	3	3	3

BAP EQUIVALENT-HALFND	UG/KG	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
AROCLOR-1260	UG/KG							
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG							
ARSENIC	MG/KG	1.8	1.6			0.98	1.29	1.6
CHROMIUM	MG/KG	6.45	5.1			7.2	7.95	8.7
COBALT	MG/KG							
IRON	MG/KG							
LEAD	MG/KG	7.5	7.7	6.3	10.6	4.6	4.9	5.2
MANGANESE	MG/KG							
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	1.2E-05	1.2E-05	1.1E-05	1.5E-05	1.2E-05	1.2E-05	1.2E-05
AROCLOR-1260	4.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	4.6E-06	4.1E-06	0.0E+00	0.0E+00	2.5E-06	3.3E-06	4.1E-06
CHROMIUM	3.4E-06	2.2E-05	1.8E-05	0.0E+00	0.0E+00	2.5E-05	2.7E-05	3.0E-05
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	3.9E-05	3.4E-05	1.1E-05	1.5E-05	3.9E-05	4.3E-05	4.6E-05

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU05	EU06	EU07	EU07	EU08	EU08	EU08
LOCATION ID	B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308
SAMPLE ID	B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19990614	20110809	20110809	20031015	20021104	20021104	20021104
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	1	0	0	0.5	0	0.5	0
BOTTOM DEPTH	2	2	2	1.5	0.5	1	0.5
BAP EQUIVALENT-HALFND	UG/KG	190 U	501 J	161 J			96.7 J	
AROCLOR-1260	UG/KG	18 U	150		290	96 J	20 J	1800
HEPTACHLOR EPOXIDE	UG/KG						0.83 U	
ALUMINUM	MG/KG	7890	5500	7400			2800 J	
ARSENIC	MG/KG	2	0.89	2.4			5.2	
CHROMIUM	MG/KG	8.5	6.9	9.5			5.8	
COBALT	MG/KG	5.4 U	2.7	5.5			1.9 U	
IRON	MG/KG	9740	11000	17000			10000	
LEAD	MG/KG	12	16 J	11 J			6.8	
MANGANESE	MG/KG	113	170 J	330 J			68	
TEQ HALFND	NG/KG			1.32 J				
Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	6.3E-06	3.3E-05	1.1E-05	0.0E+00	0.0E+00	6.4E-06	0.0E+00
AROCLOR-1260	4.5E-09	4.1E-08	6.8E-07	0.0E+00	1.3E-06	4.4E-07	9.1E-08	8.2E-06
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.8E-09	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	5.1E-06	2.3E-06	6.2E-06	0.0E+00	0.0E+00	1.3E-05	0.0E+00
CHROMIUM	3.4E-06	2.9E-05	2.4E-05	3.3E-05	0.0E+00	0.0E+00	2.0E-05	0.0E+00
COBALT	2.7E-09	7.3E-09	7.3E-09	1.5E-08	0.0E+00	0.0E+00	2.6E-09	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	2.9E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	4.1E-05	6.0E-05	5.0E-05	1.3E-06	4.4E-07	4.0E-05	8.2E-06

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330
SAMPLE ID	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20021104	20021104	20030716	20021104	20030716	20030716
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0.5	0	0.5	0.5	0.5	0	1
BOTTOM DEPTH	1	0.5	1	1	1	1	2
BAP EQUIVALENT-HALFND	UG/KG	52.3 J		621 J				
AROCLOR-1260	UG/KG	160	250	220		170	11 J	31
HEPTACHLOR EPOXIDE	UG/KG	0.85 U		0.84 U				
ALUMINUM	MG/KG	7500 J		8100 J				
ARSENIC	MG/KG	3.4		2.9	4.5			
CHROMIUM	MG/KG	12		11	5.5			
COBALT	MG/KG	7.4		6.3 J				
IRON	MG/KG	15000		15000				
LEAD	MG/KG	40		25	6			
MANGANESE	MG/KG	350		370				
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	3.5E-06	0.0E+00	4.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	4.5E-09	7.3E-07	1.1E-06	1.0E-06	0.0E+00	7.7E-07	5.0E-08	1.4E-07
HEPTACHLOR EPOXIDE	1.9E-08	8.0E-09	0.0E+00	7.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	8.7E-06	0.0E+00	7.4E-06	1.2E-05	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	4.1E-05	0.0E+00	3.8E-05	1.9E-05	0.0E+00	0.0E+00	0.0E+00
COBALT	2.7E-09	2.0E-08	0.0E+00	1.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	5.4E-05	1.1E-06	8.8E-05	3.1E-05	7.7E-07	5.0E-08	1.4E-07

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU08	EU08	EU08	EU09	EU10	EU10	EU10
LOCATION ID	SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10
SAMPLE ID	SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20031015	20110809	19970313	19990614	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	1	0.5	0	1	1	0
BOTTOM DEPTH	1	2	1.5	2	3	2	2

BAP EQUIVALENT-HALFND	UG/KG				346 J	360 U	410 U	
AROCLOR-1260	UG/KG	18 J	26 U	4.1 J	470			12000
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG				5600			
ARSENIC	MG/KG				1.4			
CHROMIUM	MG/KG				8.1			
COBALT	MG/KG				2.8			
IRON	MG/KG				11000			
LEAD	MG/KG				36 J	9		
MANGANESE	MG/KG				180 J			
TEQ HALFND	NG/KG				13.4 J			

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	0.0E+00	0.0E+00	0.0E+00	2.3E-05	1.2E-05	1.4E-05	0.0E+00
AROCLOR-1260	4.5E-09	8.2E-08	5.9E-08	1.9E-08	2.1E-06	0.0E+00	0.0E+00	5.5E-05
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	0.0E+00	3.6E-06	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	0.0E+00	2.8E-05	0.0E+00	0.0E+00	0.0E+00
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	7.6E-09	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	3.0E-06	0.0E+00	0.0E+00	0.0E+00
	Total	8.2E-08	5.9E-08	1.9E-08	6.0E-05	1.2E-05	1.4E-05	5.5E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU11	EU12	EU13	EU14	EU14	EU15	EU15
LOCATION ID	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15
SAMPLE ID	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20010515	20110811	20110809	20110809	20021104	20110809	20110809
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0.5	0	0
BOTTOM DEPTH	1	2	2	2	1	2	2

BAP EQUIVALENT-HALFND	UG/KG	79.9 J	185 J	257 J		391		
AROCLOR-1260	UG/KG	440 J	7.2 U	18 J		170		
HEPTACHLOR EPOXIDE	UG/KG	4 J						
ALUMINUM	MG/KG	6900 J	7600	6600	4900			
ARSENIC	MG/KG	3.4	1.2	1.3	1.9			
CHROMIUM	MG/KG	11	9.2	8.6	6.3			
COBALT	MG/KG	6	3.9	1.4	2.5			
IRON	MG/KG	10000 J	13000	6100	11000			
LEAD	MG/KG	23	11	27 J	13 J			
MANGANESE	MG/KG	210	220 J	75 J	150 J			
TEQ HALFND	NG/KG			6 J			3.92 J	3.72 J

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	5.3E-06	1.2E-05	1.7E-05	0.0E+00	2.6E-05	0.0E+00	0.0E+00
AROCLOR-1260	4.5E-09	2.0E-06	1.6E-08	8.2E-08	0.0E+00	7.7E-07	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	7.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	8.7E-06	3.1E-06	3.3E-06	4.9E-06	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	3.8E-05	3.2E-05	3.0E-05	2.2E-05	0.0E+00	0.0E+00	0.0E+00
COBALT	2.7E-09	1.6E-08	1.1E-08	3.8E-09	6.8E-09	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	1.3E-06	0.0E+00	0.0E+00	8.7E-07	8.3E-07
	Total	5.4E-05	4.7E-05	5.2E-05	2.7E-05	2.7E-05	8.7E-07	8.3E-07

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306
SAMPLE ID	IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
SAMPLE DATE	20110809	20021104	20021104	20021104	20021104	20021104	20021104
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0.5	0.5	0.5	0	0.5
BOTTOM DEPTH	2	0.5	1	1	1	0.5	1

BAP EQUIVALENT-HALFND	UG/KG			136 J	114 J	92.8 J		83.6 J
AROCLOR-1260	UG/KG		17 J	230	215	200	170	49
HEPTACHLOR EPOXIDE	UG/KG			0.85 U	0.85 U			0.82 U
ALUMINUM	MG/KG			4900 J	4450 J	4000 J		2600 J
ARSENIC	MG/KG			3.7	4.6	5.5		5.2
CHROMIUM	MG/KG			9.6	8.85	8.1		6
COBALT	MG/KG			2.8 J	2 J	2.4 U		1.7 U
IRON	MG/KG			9600	10300	11000		8800
LEAD	MG/KG			45	36	27		6.4
MANGANESE	MG/KG			100	97	94		60
TEQ HALFND	NG/KG	3.53 J						

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	0.0E+00	0.0E+00	9.1E-06	7.6E-06	6.2E-06	0.0E+00	5.6E-06
AROCLOR-1260	4.5E-09	0.0E+00	7.7E-08	1.0E-06	9.8E-07	9.1E-07	7.7E-07	2.2E-07
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	8.0E-09	8.0E-09	0.0E+00	0.0E+00	7.7E-09
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	9.5E-06	1.2E-05	1.4E-05	0.0E+00	1.3E-05
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	3.3E-05	3.1E-05	2.8E-05	0.0E+00	2.1E-05
COBALT	2.7E-09	0.0E+00	0.0E+00	7.6E-09	5.4E-09	3.2E-09	0.0E+00	2.3E-09
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	7.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	7.8E-07	7.7E-08	5.3E-05	5.1E-05	4.9E-05	7.7E-07	4.0E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID	SB07-311	SB07-326	SB07-326	SB07-327	SB07-327	SB07-328	SB07-328
SAMPLE ID	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20021104	20030716	20030716	20030716	20030716	20030716	20030716
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0.5	1	1.5	1	1.5	0	1
BOTTOM DEPTH	1	1.5	2	1.5	2	1	2

BAP EQUIVALENT-HALFND	UG/KG	124						
AROCLOR-1260	UG/KG	1000 J	1500	12 J	2900	14 J	72	500
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG							
ARSENIC	MG/KG							
CHROMIUM	MG/KG							
COBALT	MG/KG							
IRON	MG/KG							
LEAD	MG/KG							
MANGANESE	MG/KG							
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	8.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AROCLOR-1260	4.5E-09	4.5E-06	6.8E-06	5.5E-08	1.3E-05	6.4E-08	3.3E-07	2.3E-06
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.3E-05	6.8E-06	5.5E-08	1.3E-05	6.4E-08	3.3E-07	2.3E-06

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU15	EU15	EU15	EU15	EU15	EU16	EU17
LOCATION ID	SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17
SAMPLE ID	SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20030716	20030716	20031015	20031015	20031015	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	1	1	0.5	0.5	0	0
BOTTOM DEPTH	1	2	1.5	1.5	1.5	2	2
BAP EQUIVALENT-HALFND	UG/KG					495 J	318 J
AROCLOR-1260	UG/KG	1200	600	28 U	330	24 J	300	1800
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG						10000	6100
ARSENIC	MG/KG						1.3	1.2
CHROMIUM	MG/KG						13	12
COBALT	MG/KG						2.8	2.8
IRON	MG/KG						9900	15000
LEAD	MG/KG						56 J	69 J
MANGANESE	MG/KG						160 J	390 J
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-05	2.1E-05
AROCLOR-1260	4.5E-09	5.5E-06	2.7E-06	6.4E-08	1.5E-06	1.1E-07	1.4E-06	8.2E-06
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-06	3.1E-06
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-05	4.1E-05
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.6E-09	7.6E-09
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	5.5E-06	2.7E-06	6.4E-08	1.5E-06	1.1E-07	8.3E-05	7.4E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU18	EU18	EU19	EU20	EU21	EU21	EU22
LOCATION ID	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22
SAMPLE ID	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981221	20010515	20110811	19981216	20110811	19981216	20110811
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	2	1	2	1	2
BAP EQUIVALENT-HALFND	UG/KG	87.7 J		78.4 J	58.1 J		61.8 J	
AROCLOR-1260	UG/KG	480 J	120	7.4 U		7.6 U		10 J
HEPTACHLOR EPOXIDE	UG/KG	8.4 J						
ALUMINUM	MG/KG	5110 J		7400	5280 J		6620 J	
ARSENIC	MG/KG	2.1		5.9	1.8 J		1.9 J	
CHROMIUM	MG/KG	7.7		8.9	6.1 J		7.2 J	
COBALT	MG/KG	2.2 J		3.9	4.6		4	
IRON	MG/KG	9160 J		10000	11500 J		10700 J	
LEAD	MG/KG	17.3 J		27	8 J		16.5 J	
MANGANESE	MG/KG	96.7 J		180 J	357 J		191 J	
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	5.8E-06	0.0E+00	5.2E-06	3.9E-06	0.0E+00	4.1E-06	0.0E+00
AROCLOR-1260	4.5E-09	2.2E-06	5.5E-07	1.7E-08	0.0E+00	1.7E-08	0.0E+00	4.5E-08
HEPTACHLOR EPOXIDE	1.9E-08	1.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	5.4E-06	0.0E+00	1.5E-05	4.6E-06	0.0E+00	4.9E-06	0.0E+00
CHROMIUM	3.4E-06	2.7E-05	0.0E+00	3.1E-05	2.1E-05	0.0E+00	2.5E-05	0.0E+00
COBALT	2.7E-09	5.9E-09	0.0E+00	1.1E-08	1.2E-08	0.0E+00	1.1E-08	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	4.0E-05	5.5E-07	5.1E-05	3.0E-05	1.7E-08	3.4E-05	4.5E-08

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU22	EU23	EU24	EU26	EU26	EU26	EU26
LOCATION ID	SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010
SAMPLE ID	SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981216	20110810	20030725	19960730	19960731	19960802	19981209
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	1	1	1	0
BOTTOM DEPTH	1	2	1	3	3	2.2	1

BAP EQUIVALENT-HALFND	UG/KG	15 J	186 J	260 U	268 J	350 U	246 J	480 J
AROCLOR-1260	UG/KG		8 J	31 J				35 U
HEPTACHLOR EPOXIDE	UG/KG			0.81 U				6.2 J
ALUMINUM	MG/KG	7330 J	6800	5600				7620 J
ARSENIC	MG/KG	1.9 J	2.2	3 J				3 J
CHROMIUM	MG/KG	8	7.5	6.8				12
COBALT	MG/KG	3.4	3.4	3.9 J				4.5
IRON	MG/KG	11900 J	12000	11000				13200 J
LEAD	MG/KG	29.8 J	26	10				28.9
MANGANESE	MG/KG	185 J	150 J	210				156 J
TEQ HALFND	NG/KG			0.612				6.85 R

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	1.0E-06	1.2E-05	8.7E-06	1.8E-05	1.2E-05	1.6E-05	3.2E-05
AROCLOR-1260	4.5E-09	0.0E+00	3.6E-08	1.4E-07	0.0E+00	0.0E+00	0.0E+00	8.0E-08
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	7.6E-09	0.0E+00	0.0E+00	0.0E+00	1.2E-07
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	4.9E-06	5.6E-06	7.7E-06	0.0E+00	0.0E+00	0.0E+00	7.7E-06
CHROMIUM	3.4E-06	2.8E-05	2.6E-05	2.3E-05	0.0E+00	0.0E+00	0.0E+00	4.1E-05
COBALT	2.7E-09	9.2E-09	9.2E-09	1.1E-08	0.0E+00	0.0E+00	0.0E+00	1.2E-08
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	3.3E-05	4.4E-05	4.0E-05	1.8E-05	1.2E-05	1.6E-05	8.1E-05

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU26	EU26	EU27	EU27	EU27	EU28	EU28
LOCATION ID	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN
SAMPLE ID	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981209	20030716	19960805	19960805	20110810	20040311	20040311
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	1	1	0	0	0
BOTTOM DEPTH	1	1	3	3	2	1	1
BAP EQUIVALENT-HALFND	UG/KG	89.5 J		390 U	520 U		22 U	21 U
AROCLOR-1260	UG/KG	34 U				7.3 U		
HEPTACHLOR EPOXIDE	UG/KG	1.7 U						
ALUMINUM	MG/KG	7100 J				7100		
ARSENIC	MG/KG	2.1				2.1		
CHROMIUM	MG/KG	9.1 J				9.4		
COBALT	MG/KG	4.6				4.4		
IRON	MG/KG	13100 J				14000		
LEAD	MG/KG	8.7 J				25 J		
MANGANESE	MG/KG	233 J				140 J		
TEQ HALFND	NG/KG	1.65	5.44			2.98 J		

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	6.0E-06	0.0E+00	1.3E-05	1.7E-05	0.0E+00	7.3E-07	7.0E-07
AROCLOR-1260	4.5E-09	7.7E-08	0.0E+00	0.0E+00	0.0E+00	1.7E-08	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	1.6E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	5.4E-06	0.0E+00	0.0E+00	0.0E+00	5.4E-06	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	3.1E-05	0.0E+00	0.0E+00	0.0E+00	3.2E-05	0.0E+00	0.0E+00
COBALT	2.7E-09	1.2E-08	0.0E+00	0.0E+00	0.0E+00	1.2E-08	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	3.7E-07	1.2E-06	0.0E+00	0.0E+00	6.6E-07	0.0E+00	0.0E+00
	Total	4.3E-05	1.2E-06	1.3E-05	1.7E-05	3.8E-05	7.3E-07	7.0E-07

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01
SAMPLE ID	S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	20040311	20040311	20040311	20040311	20040311	20040311	20040929
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	1	1

BAP EQUIVALENT-HALFND	UG/KG	22 U	75.2 J	141 J	206 J	22.5 J	46.1 J	40.7 J
AROCLOR-1260	UG/KG							
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG							
ARSENIC	MG/KG							
CHROMIUM	MG/KG							
COBALT	MG/KG							
IRON	MG/KG							
LEAD	MG/KG							
MANGANESE	MG/KG							
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	7.3E-07	5.0E-06	9.4E-06	1.4E-05	1.5E-06	3.1E-06	2.7E-06
AROCLOR-1260	4.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	7.3E-07	5.0E-06	9.4E-06	1.4E-05	1.5E-06	3.1E-06	2.7E-06

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001
SAMPLE ID	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20040929	20040929	20040929	20040930	20040930	20110809	19981208
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	2	1
BAP EQUIVALENT-HALFND	UG/KG	92.4 J	144 J	23 U	21 U	413		6710 J
AROCLOR-1260	UG/KG							34 U
HEPTACHLOR EPOXIDE	UG/KG							63 J
ALUMINUM	MG/KG							4740 J
ARSENIC	MG/KG							2.6
CHROMIUM	MG/KG							11.9
COBALT	MG/KG							3.4
IRON	MG/KG							11100
LEAD	MG/KG							90.7
MANGANESE	MG/KG							209
TEQ HALFND	NG/KG						3.85 J	

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	6.2E-06	9.6E-06	7.7E-07	7.0E-07	2.8E-05	0.0E+00	4.5E-04
AROCLOR-1260	4.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-08
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-06
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-06
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-05
COBALT	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-09
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-07	0.0E+00
	Total	6.2E-06	9.6E-06	7.7E-07	7.0E-07	2.8E-05	8.6E-07	5.0E-04

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU28	EU29	EU29	EU29	EU30	EU31	EU32
LOCATION ID	SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32
SAMPLE ID	SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG
SAMPLE DATE	19981208	20110810	20110810	20110810	20110810	20110810	20110811
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	2	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG	15600 J	1880 J	1920 J	1960 J	154 J	95 UJ	47.4 J
AROCLOR-1260	UG/KG	35 U	59	61	63	86	150	7.4 U
HEPTACHLOR EPOXIDE	UG/KG	200 J						
ALUMINUM	MG/KG	5230 J	7800	6900	6000	13000	7000	4800
ARSENIC	MG/KG	4.1	6.4	5.7	5	1.5	2.2	1.1
CHROMIUM	MG/KG	18.7	14	12	10	17	10	6.2
COBALT	MG/KG	4	3	2.55	2.1	3.9	4.1	3.7
IRON	MG/KG	13200	21000	19000	17000	16000	18000	8800
LEAD	MG/KG	114	20 J	16 J	12 J	9.3 J	10 J	7.1
MANGANESE	MG/KG	294	100 J	92 J	84 J	200 J	440 J	210 J
TEQ HALFND	NG/KG							

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	1.0E-03	1.3E-04	1.3E-04	1.3E-04	1.0E-05	6.3E-06	3.2E-06
AROCLOR-1260	4.5E-09	8.0E-08	2.7E-07	2.8E-07	2.9E-07	3.9E-07	6.8E-07	1.7E-08
HEPTACHLOR EPOXIDE	1.9E-08	3.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	1.1E-05	1.6E-05	1.5E-05	1.3E-05	3.8E-06	5.6E-06	2.8E-06
CHROMIUM	3.4E-06	6.4E-05	4.8E-05	4.1E-05	3.4E-05	5.9E-05	3.4E-05	2.1E-05
COBALT	2.7E-09	1.1E-08	8.1E-09	6.9E-09	5.7E-09	1.1E-08	1.1E-08	1.0E-08
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	1.1E-03	1.9E-04	1.8E-04	1.8E-04	7.3E-05	4.7E-05	2.7E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU32	EU32	EU33	EU34	EU35	EU36	EU37
LOCATION ID	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37
SAMPLE ID	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110811	20110811	20110810	20110810	20110810	20110810	20110809
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG	43.8 J	40.2 J	75.1 J	85.9 J	30.5 J	648 J	
AROCLOR-1260	UG/KG	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U	
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG	4650	4500	7100	7600	6500	9400	
ARSENIC	MG/KG	1.15	1.2	1.7	1.6	1.2	2.3	
CHROMIUM	MG/KG	5.7	5.2	7	8.2	9	15	
COBALT	MG/KG	3.65	3.6	4.3	5.6	3.6	4.9	
IRON	MG/KG	8450	8100	15000	22000	12000	18000	
LEAD	MG/KG	6.8	6.5	10	9.9	8.2	32	
MANGANESE	MG/KG	220 J	230 J	240 J	380 J	200 J	350 J	
TEQ HALFND	NG/KG						2.67 J	1.65 J

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	2.9E-06	2.7E-06	5.0E-06	5.7E-06	2.0E-06	4.3E-05	0.0E+00
AROCLOR-1260	4.5E-09	1.7E-08	1.8E-08	1.6E-08	1.8E-08	1.6E-08	1.7E-08	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	2.9E-06	3.1E-06	4.4E-06	4.1E-06	3.1E-06	5.9E-06	0.0E+00
CHROMIUM	3.4E-06	2.0E-05	1.8E-05	2.4E-05	2.8E-05	3.1E-05	5.2E-05	0.0E+00
COBALT	2.7E-09	9.9E-09	9.7E-09	1.2E-08	1.5E-08	9.7E-09	1.3E-08	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-07	3.7E-07
	Total	2.6E-05	2.4E-05	3.4E-05	3.8E-05	3.6E-05	1.0E-04	3.7E-07

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU37	EU37	EU37	EU37	EU37	EU37	EU38
LOCATION ID	MW06-013	SB06-008	SB06-008	SB06-008	SB06-009	SB06-351	IOA-SS-EU38
SAMPLE ID	MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0	SB06-351-NSO-072503	IOA-SS-EU38-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981124	19981208	19981208	19981208	19981208	20030725	20110809
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	1	1	1	2

BAP EQUIVALENT-HALFND	UG/KG	1800 U	311 J	602 J	893 J	224 J	300 U	
AROCLOR-1260	UG/KG	35 U	35 U	35.5 U	36 U	36 U	31 U	
HEPTACHLOR EPOXIDE	UG/KG	1.7 U	9.6 J	8.7 J	7.8 J	12 J	0.99 U	
ALUMINUM	MG/KG	7380 J	6960 J	6620 J	6280 J	4470 J	5900	
ARSENIC	MG/KG	4.4 J	3.1	3.85	4.6	0.81 J	11 J	
CHROMIUM	MG/KG	10.6	11.8	11.1	10.4	7.6	9.5	
COBALT	MG/KG	3.6	3.8	3.55	3.3	4	2.7 J	
IRON	MG/KG	14700	12100	11600	11100	6660	10000	
LEAD	MG/KG	8.5 J	62.9	60.2	57.5	11.7	7.8	
MANGANESE	MG/KG	150 J	127	135	143	92.5 J	66	
TEQ HALFND	NG/KG						7.5	0.477 J

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	6.0E-05	2.1E-05	4.0E-05	6.0E-05	1.5E-05	1.0E-05	0.0E+00
AROCLOR-1260	4.5E-09	8.0E-08	8.0E-08	8.1E-08	8.2E-08	8.2E-08	7.0E-08	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	1.6E-08	1.8E-07	1.6E-07	1.5E-07	2.3E-07	9.3E-09	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	1.1E-05	7.9E-06	9.9E-06	1.2E-05	2.1E-06	2.8E-05	0.0E+00
CHROMIUM	3.4E-06	3.7E-05	4.1E-05	3.8E-05	3.6E-05	2.6E-05	3.3E-05	0.0E+00
COBALT	2.7E-09	9.7E-09	1.0E-08	9.6E-09	8.9E-09	1.1E-08	7.3E-09	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-06	1.1E-07
	Total	1.1E-04	7.0E-05	8.9E-05	1.1E-04	4.4E-05	7.3E-05	1.1E-07

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU38	EU38	EU38	EU39	EU39	EU39	EU39
LOCATION ID	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020
SAMPLE ID	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE	19981208	19981208	19981209	20110809	19981208	19981208	19981027
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	1	2	1	1	1
BAP EQUIVALENT-HALFND	UG/KG	3530 J	1220 J	2.2 UJ		328 J	1560 J	
AROCLOR-1260	UG/KG	35 U	35 U	37 U		36 U	36 U	
HEPTACHLOR EPOXIDE	UG/KG	13 J	26 J	1.8 U		2.7 J	21 J	
ALUMINUM	MG/KG	5230 J	5680 J	8950 J		5230 J	8890 J	
ARSENIC	MG/KG	10.4	7.3	2.8		1.7	8.1	
CHROMIUM	MG/KG	12.3	10.9	9.2 J		6.8	149	
COBALT	MG/KG	3.6	3.6	3.4		2.4 J	5.9	
IRON	MG/KG	12200	9970	13400 J		8310	16100	
LEAD	MG/KG	141	75.6	7.7 J		32.1	1280	550
MANGANESE	MG/KG	180	138	157 J		132	207	
TEQ HALFND	NG/KG				9.2 J			

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	2.4E-04	8.1E-05	1.5E-07	0.0E+00	2.2E-05	1.0E-04	0.0E+00
AROCLOR-1260	4.5E-09	8.0E-08	8.0E-08	8.4E-08	0.0E+00	8.2E-08	8.2E-08	0.0E+00
HEPTACHLOR EPOXIDE	1.9E-08	2.5E-07	4.9E-07	1.7E-08	0.0E+00	5.1E-08	4.0E-07	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	2.7E-05	1.9E-05	7.2E-06	0.0E+00	4.4E-06	2.1E-05	0.0E+00
CHROMIUM	3.4E-06	4.2E-05	3.8E-05	3.2E-05	0.0E+00	2.3E-05	5.1E-04	0.0E+00
COBALT	2.7E-09	9.7E-09	9.7E-09	9.2E-09	0.0E+00	6.5E-09	1.6E-08	0.0E+00
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	0.0E+00	0.0E+00
	Total	3.0E-04	1.4E-04	3.9E-05	2.0E-06	5.0E-05	6.4E-04	0.0E+00

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU39	EU39	EU40	EU41	EU42	EU43	EU44
LOCATION ID	SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44
SAMPLE ID	SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	19981027	19981027	20110810	20110810	20110810	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	1	1	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG			7970 J	85.4 J	69.3 J	129 J	81 J
AROCLOR-1260	UG/KG			46	7.4 U	8 U	710	7.6 U
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG			10000	9200	11000	7600	6800
ARSENIC	MG/KG			5.3	0.75	2.3	2.1	1.7
CHROMIUM	MG/KG			15	10	9.3	11	7.9
COBALT	MG/KG			3.5	2.6	3.7	4	4.9
IRON	MG/KG			16000	11000	19000	16000	14000
LEAD	MG/KG	503	456	100 J	7.1 J	16	35	20
MANGANESE	MG/KG			210 J	130 J	240 J	310 J	390 J
TEQ HALFND	NG/KG						15.2 J	

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	0.0E+00	0.0E+00	5.3E-04	5.7E-06	4.6E-06	8.6E-06	5.4E-06
AROCLOR-1260	4.5E-09	0.0E+00	0.0E+00	2.1E-07	1.7E-08	1.8E-08	3.2E-06	1.7E-08
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	0.0E+00	0.0E+00	1.4E-05	1.9E-06	5.9E-06	5.4E-06	4.4E-06
CHROMIUM	3.4E-06	0.0E+00	0.0E+00	5.2E-05	3.4E-05	3.2E-05	3.8E-05	2.7E-05
COBALT	2.7E-09	0.0E+00	0.0E+00	9.5E-09	7.0E-09	1.0E-08	1.1E-08	1.3E-08
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-06	0.0E+00
	Total	0.0E+00	0.0E+00	6.0E-04	4.2E-05	4.3E-05	5.9E-05	3.7E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.2
LOCATION-BY-LOCATION CANCER RISKS - SURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2

BAP EQUIVALENT-HALFND	UG/KG	469 J	63.6 J	65.2 J	66.8 J	19 UJ	32.2 J	19 UJ
AROCLOR-1260	UG/KG	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
HEPTACHLOR EPOXIDE	UG/KG							
ALUMINUM	MG/KG	8000	10000	10000	10000	7900	8500	6400
ARSENIC	MG/KG	7.2	1.4	1.35	1.3	1.3	3.4	36
CHROMIUM	MG/KG	14	11	10.3	9.6	16	9.9	7.9
COBALT	MG/KG	3.8	3.1	2.9	2.7	6.3	5.2	4
IRON	MG/KG	14000	13000	12000	11000	11000	20000	45000
LEAD	MG/KG	320	33	28.5	24	10	8.1	16
MANGANESE	MG/KG	220 J	160 J	145 J	130 J	220 J	310 J	280 J
TEQ HALFND	NG/KG		3.15 J	2.5 J	1.84 J			

Lifelong Residents	**Unit Risk**							
BAP EQUIVALENT-HALFND	6.7E-08	3.1E-05	4.2E-06	4.3E-06	4.5E-06	1.3E-06	2.1E-06	1.3E-06
AROCLOR-1260	4.5E-09	2.8E-07	2.3E-08	1.9E-08	1.6E-08	1.7E-08	3.6E-08	1.7E-08
HEPTACHLOR EPOXIDE	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ALUMINUM	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	2.6E-06	1.8E-05	3.6E-06	3.5E-06	3.3E-06	3.3E-06	8.7E-06	9.2E-05
CHROMIUM	3.4E-06	4.8E-05	3.8E-05	3.6E-05	3.3E-05	5.5E-05	3.4E-05	2.7E-05
COBALT	2.7E-09	1.0E-08	8.4E-09	7.8E-09	7.3E-09	1.7E-08	1.4E-08	1.1E-08
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TEQ HALFND	2E-07	0.0E+00	7.0E-07	5.6E-07	4.1E-07	0.0E+00	0.0E+00	0.0E+00
	Total	9.8E-05	4.6E-05	4.4E-05	4.1E-05	6.0E-05	4.5E-05	1.2E-04

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

TABLE D-4.3
LOCATION-BY-LOCATION HAZARD INDICES - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33
LOCATION ID	IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14
SAMPLE ID	IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG
MATRIX	SO	SO	SO	SO	SO	SO
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE	20110815	20110815	20110815	20110815	20110815	20110815
SUBMATRIX	SB	SB	SB	SB	SB	SB
TOP DEPTH	5	3	3	3	5	5
BOTTOM DEPTH	7	5	5	5	7	7

BAP EQUIVALENT-HALFND	UG/KG	584 J	30.6 J	17 UJ	244 J	152 J	136 J
ARSENIC	MG/KG	1.9	1.7	1.7	2.3	1.5	1.5
CHROMIUM	MG/KG	10	11	9.7	8.9	9.2	8.25
COBALT	MG/KG	4.3	4.7	3.9	4.7	6.8	6.7
IRON	MG/KG	13000	14000	18000	11000	14000	14000

Child Residents **Unit Risk**

BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	8.6E-02	7.7E-02	7.7E-02	1.0E-01	6.8E-02	6.8E-02
CHROMIUM	4.3E-03	4.3E-02	4.8E-02	4.2E-02	3.9E-02	4.0E-02	3.6E-02
COBALT	4.3E-02	1.9E-01	2.0E-01	1.7E-01	2.0E-01	3.0E-01	2.9E-01
IRON	1.8E-05	2.4E-01	2.5E-01	3.3E-01	2.0E-01	2.5E-01	2.5E-01
	Total	5.5E-01	5.8E-01	6.2E-01	5.5E-01	6.6E-01	6.5E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.3
LOCATION-BY-LOCATION HAZARD INDICES - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
MATRIX	SO	SO	SO	SO	SO
SAMPLE CODE	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE	20110815	20110809	20110811	20110811	20110811
SUBMATRIX	SB	SB	SB	SB	SB
TOP DEPTH	5	6	6	6	6
BOTTOM DEPTH	7	8	8	8	8

BAP EQUIVALENT-HALFND	UG/KG	121 J	19 UJ	20 UJ	18 UJ	19 UJ
ARSENIC	MG/KG	1.5	0.22 J	0.18 J	0.57	0.13 J
CHROMIUM	MG/KG	7.3	4.7	6.3	6.2	5.5
COBALT	MG/KG	6.6	1.9	2.3	2.6	2.6
IRON	MG/KG	14000	4900	6000	7100	6000

Child Residents **Unit Risk**

BAP EQUIVALENT-HALFND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ARSENIC	4.5E-02	6.8E-02	1.0E-02	8.2E-03	2.6E-02	5.9E-03
CHROMIUM	4.3E-03	3.2E-02	2.0E-02	2.7E-02	2.7E-02	2.4E-02
COBALT	4.3E-02	2.9E-01	8.3E-02	1.0E-01	1.1E-01	1.1E-01
IRON	1.8E-05	2.5E-01	8.9E-02	1.1E-01	1.3E-01	1.1E-01
	Total	6.4E-01	2.0E-01	2.4E-01	3.0E-01	2.5E-01

Red shading = total greater than 1
(using one significant figure).

TABLE D-4.4
LOCATION-BY-LOCATION CANCER RISKS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		RIA33	RIA33	RIA33	RIA33	RIA33	RIA33
LOCATION ID		IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14
SAMPLE ID		IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG
MATRIX		SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE		20110815	20110815	20110815	20110815	20110815	20110815
SUBMATRIX		SB	SB	SB	SB	SB	SB
TOP DEPTH		5	3	3	3	5	5
BOTTOM DEPTH		7	5	5	5	7	7
BAP EQUIVALENT-HALFND	UG/KG	584 J	30.6 J	17 UJ	244 J	152 J	136 J
ARSENIC	MG/KG	1.9	1.7	1.7	2.3	1.5	1.5
CHROMIUM	MG/KG	10	11	9.7	8.9	9.2	8.25
COBALT	MG/KG	4.3	4.7	3.9	4.7	6.8	6.7
IRON	MG/KG	13000	14000	18000	11000	14000	14000

Lifelong Residents	**Unit Risk**						
BAP EQUIVALENT-HALFND	6.66667E-08	3.9E-05	2.0E-06	1.1E-06	1.6E-05	1.0E-05	9.1E-06
ARSENIC	2.5641E-06	4.9E-06	4.4E-06	4.4E-06	5.9E-06	3.8E-06	3.8E-06
CHROMIUM	3.44828E-06	3.4E-05	3.8E-05	3.3E-05	3.1E-05	3.2E-05	2.8E-05
COBALT	2.7027E-09	1.2E-08	1.3E-08	1.1E-08	1.3E-08	1.8E-08	1.8E-08
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	7.8E-05	4.4E-05	3.9E-05	5.3E-05	4.6E-05	4.1E-05

Red shading = total greater than 1E-04
(using one significant figure).

TABLE D-4.4
LOCATION-BY-LOCATION CANCER RISKS - SUBSURFACE SOIL
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID		IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID		IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
MATRIX		SO	SO	SO	SO	SO
SAMPLE CODE		DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110815	20110809	20110811	20110811	20110811
SUBMATRIX		SB	SB	SB	SB	SB
TOP DEPTH		5	6	6	6	6
BOTTOM DEPTH		7	8	8	8	8
BAP EQUIVALENT-HALFND	UG/KG	121 J	19 UJ	20 UJ	18 UJ	19 UJ
ARSENIC	MG/KG	1.5	0.22 J	0.18 J	0.57	0.13 J
CHROMIUM	MG/KG	7.3	4.7	6.3	6.2	5.5
COBALT	MG/KG	6.6	1.9	2.3	2.6	2.6
IRON	MG/KG	14000	4900	6000	7100	6000

Lifelong Residents	**Unit Risk**					
BAP EQUIVALENT-HALFND	6.66667E-08	8.1E-06	1.3E-06	1.3E-06	1.2E-06	1.3E-06
ARSENIC	2.5641E-06	3.8E-06	5.6E-07	4.6E-07	1.5E-06	3.3E-07
CHROMIUM	3.44828E-06	2.5E-05	1.6E-05	2.2E-05	2.1E-05	1.9E-05
COBALT	2.7027E-09	1.8E-08	5.1E-09	6.2E-09	7.0E-09	7.0E-09
IRON	0	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Total	3.7E-05	1.8E-05	2.4E-05	2.4E-05	2.1E-05

Red shading = total greater than 1E-04
(using one significant figure).

U - NOT DETECTED; J - QUANTITATION APPROXIMATE; R - REJECTED

APPENDIX D-5

LEAD MODELING RESULTS

LEAD MODEL FOR WINDOWS Version 1.1

==========

Model Version: 1.1 Build11
User Name: Tetra Tech
Date: 07/19/2012
Site Name: Industrial Operations Area
Operable Unit: NAS South Weymouth, Weymouth, Massachusetts
Run Mode: Site Risk Assessment

#All default values Average lead concentration in EU39 surface soil = 605 mg/kg.

==========

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 433.500 µg/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	605.000	433.500
1-2	605.000	433.500
2-3	605.000	433.500
3-4	605.000	433.500
4-5	605.000	433.500
5-6	605.000	433.500
6-7	605.000	433.500

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

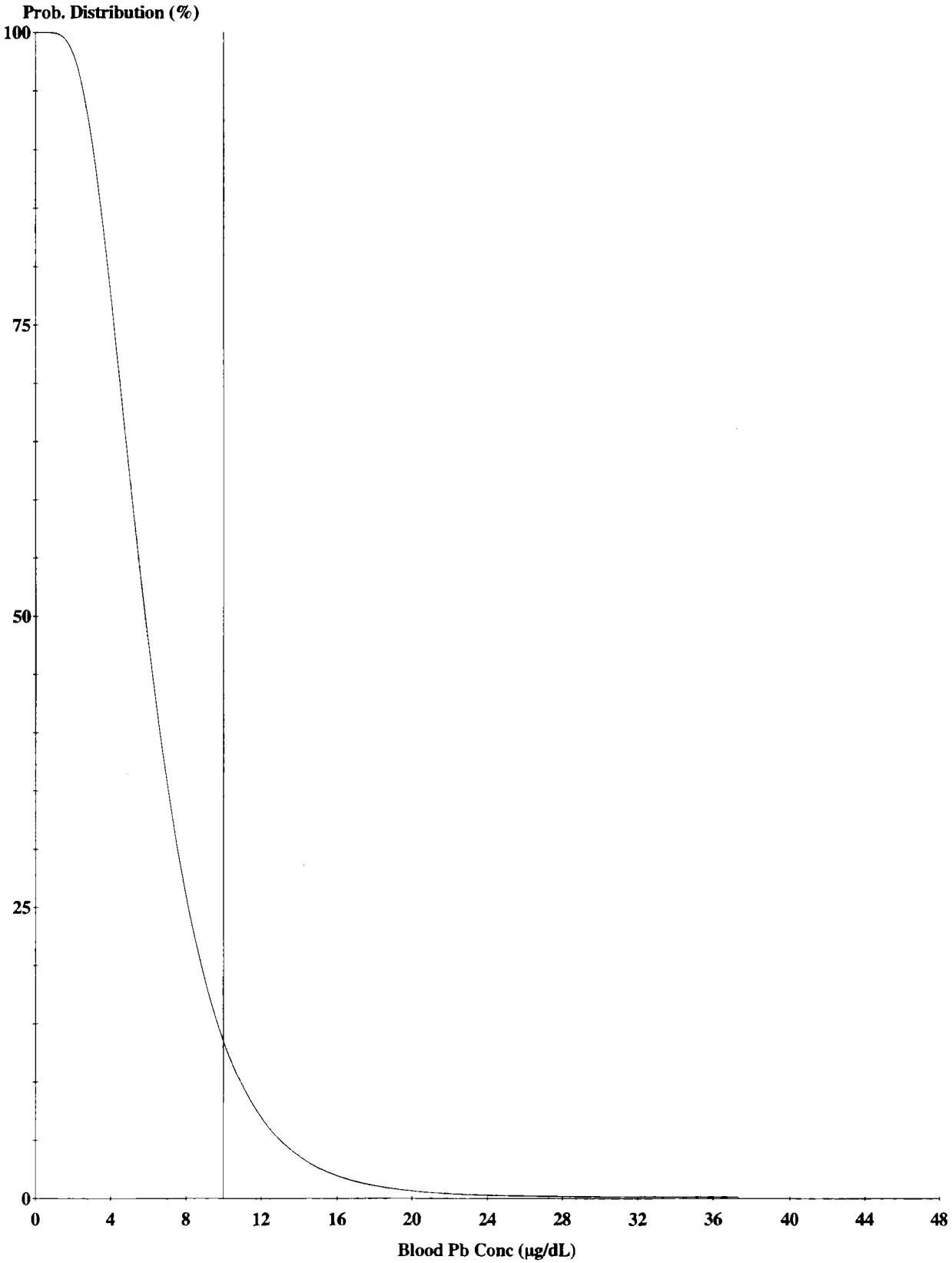
****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	0.977	0.000	0.346
1-2	0.034	0.826	0.000	0.843
2-3	0.062	0.918	0.000	0.896
3-4	0.067	0.896	0.000	0.932
4-5	0.067	0.893	0.000	1.007
5-6	0.093	0.953	0.000	1.079
6-7	0.093	1.041	0.000	1.106

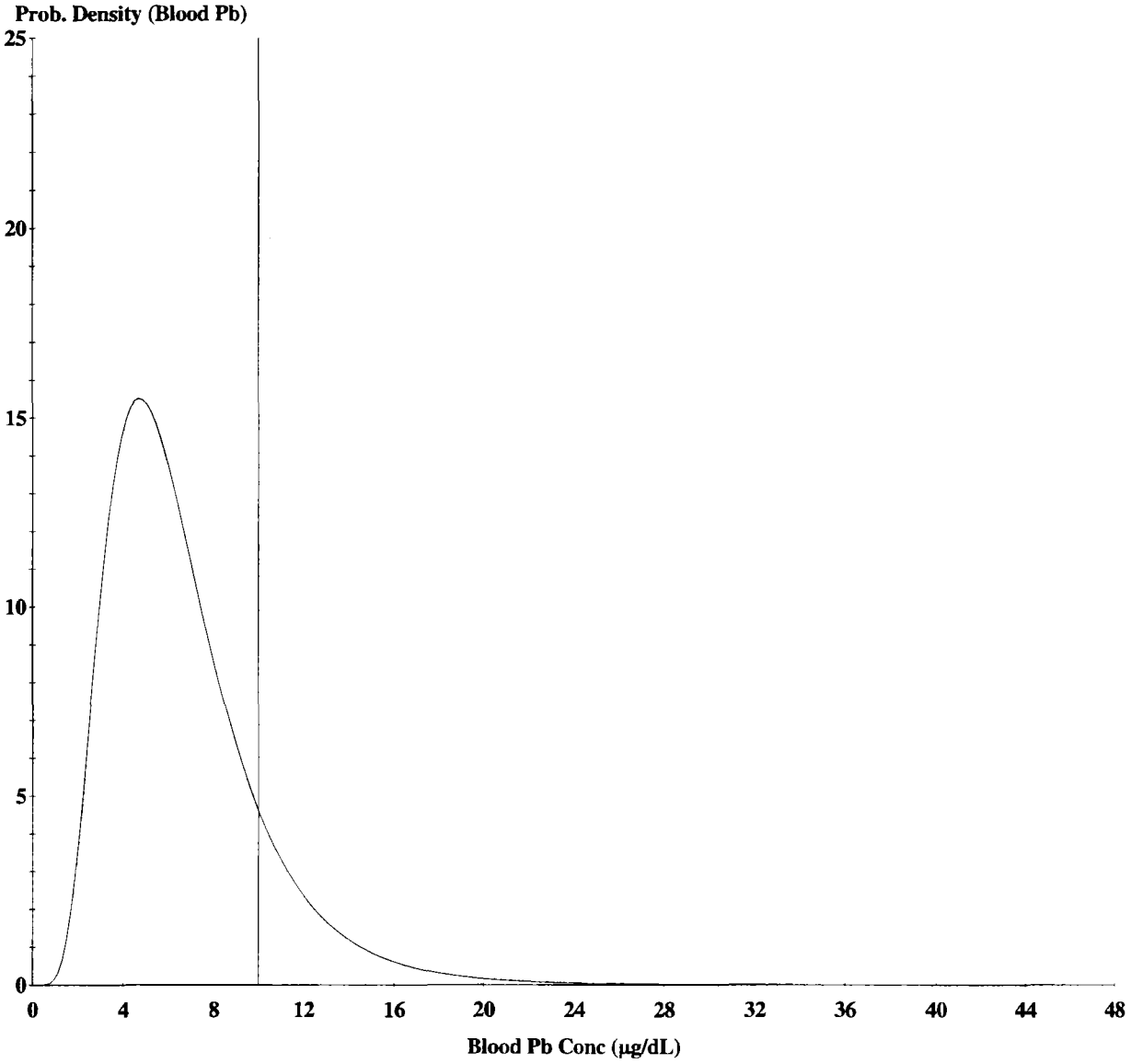
Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	11.258	12.601	6.7
1-2	17.432	19.135	7.8
2-3	17.822	19.697	7.3
3-4	18.177	20.071	7.0
4-5	14.029	15.996	5.7
5-6	12.822	14.947	4.8
6-7	12.211	14.452	4.2



Cutoff = 10.000 µg/dl
Geo Mean = 6.104
GSD = 1.600
% Above = 14.679

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Avg. Pb in EU 39 SS=605 mg/kg



Cutoff = 10.000 µg/dl
Geo Mean = 6.104
GSD = 1.600
% Above = 14.679
% Below = 85.321

Age Range = 0 to 84 months

Run Mode = Site Risk Assessment
Comment = Avg. Pb in EU39 SS = 605 mg/kg

SITE NAME: NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
LOCATION: INDUSTRIAL OPERATIONS AREA
RECEPTOR: ADULT COMMERCIAL RECEPTORS
MEDIA: SURFACE SOIL - EXPOSURE UNIT 39
DATE: JULY 19, 2012

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004
PbS	Soil lead concentration	ug/g or ppm	605
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
GSD_i	Geometric standard deviation PbB	--	1.8
PbB_0	Baseline PbB	ug/dL	1.0
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--
K_{SD}	Mass fraction of soil in dust	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	75
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.3**
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	3.1
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.013%**

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

APPENDIX D-6

RISKS INCLUDING CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

LIST OF TABLES
RAGS PART D TABLE 3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY - INCLUDING CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Table No.	Reasonable Maximum Exposures
3.1.RME	Surface Soil - High Concentrations Area
3.2.RME	Surface Soil - Low Concentrations Area
3.3.RME	Subsurface Soil

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil - Higher Concentrations EUs
Exposure Medium: Surface Soil - Higher Concentrations EUs

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	2.1	3.8 (G)	15.6 J	3.8	mg/kg	95% KM (BCA) UCL	ProUCL 4.1.01
	Aroclor-1260	mg/kg	NA[1]	NA[1]	0.063	0.063	mg/kg	Maximum Detected Concentration	(1)
	Heptachlor Epoxide	mg/kg	0.047	0.16 (G)	0.20 J	0.160	mg/kg	95% KM (Chebyshev) UCL	ProUCL 4.1.01
	2,3,7,8-TCDD Equivalents	mg/kg	NA[2]	NA[2]	0.0000092 J	0.0000092	mg/kg	Maximum Detected Concentration	(2)
	Aluminum	mg/kg	6800	8000 (N)	10000	8000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Arsenic	mg/kg	5.3	7.1 (N)	10.4	7.1	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	27.3	93.8 (NP)	149	93.8	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.6	4.2 (N)	5.9	4.2	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Iron	mg/kg	13000	15000 (N)	21000	15000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Lead	mg/kg	240	600 (G)	1280	240	mg/kg	Arithmetic Mean Concentration	ProUCL 4.1.01
	Manganese	mg/kg	180	220 (N)	294	220	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Thallium	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	mg/kg	290	35.0 (N)	45.2	35.0	mg/kg	95% Student's-t UCL	ProUCL 4.1.01

1 - There are less than four detected concentrations. Reliable statistics cannot be computed. The maximum concentration was used as the EPC.
2 - There are less than five samples. Reliable statistics cannot be computed. The Maximum concentration was used as the EPC.
3 - The mean concentration is used as the exposure point concentration for lead.

EU = Exposure unit
G = Gamma
IOA = Industrial Operations Area
mg/kg = milligram per kilogram
N = Normal
NA = Not applicable.
NP = Non-parametric
UCL = Upper confidence limit

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil - Lower Concentrations EUs
Exposure Medium: Surface Soil - Lower Concentrations EUs

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	0.20	0.21 (L)	0.893 J	0.21	mg/kg	95% KM (BCA) UCL	ProUCL 4.1.01
	Aroclor-1260	mg/kg	0.40	1.5 (L)	12	1.5	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL 4.1.01
	Heptachlor Epoxide	mg/kg	0.0031	0.0067 (N)	0.012 J	0.0067	mg/kg	95% KM (t) UCL	ProUCL 4.1.01
	2,3,7,8-TCDD Equivalents	mg/kg	0.0000050	0.0000080 (G)	0.0000152 J	0.0000080	mg/kg	95% Approximate Gamma UCL	ProUCL 4.1.01
	Aluminum	mg/kg	6900	7300 (N)	13000	7300	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Arsenic	mg/kg	3.2	6.2 (NP)	36	6.2	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	9.2	9.9 (N)	17	9.9	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.7	4.1 (N)	7.4	4.1	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL 4.1.01
	Iron	mg/kg	13000	15000 (NP)	45000	15000	mg/kg	95% Modified-t UCL	ProUCL 4.1.01
	Lead	mg/kg	24	49 (NP)	320	24	mg/kg	Arithmetic Mean Concentration	ProUCL 4.1.01
	Manganese	mg/kg	210	240 (G)	440 J	240	mg/kg	95% Approximate Gamma UCL	ProUCL 4.1.01
	Thallium	mg/kg	0.14	NA[1]	0.39	0.39	mg/kg	Maximum Detected Concentration	(1)
	Vanadium	mg/kg	18.0	19 (L)	39.8 J	19	mg/kg	95% Modified-t UCL	ProUCL 4.1.01

1 - There are less than four detected concentrations. Reliable statistics cannot be computed. The maximum concentration was used as the EPC.

EU = Exposure unit
G = Gamma
IOA = Industrial Operations Area
L = Lognormal
mg/kg = milligram per kilogram
N = Normal
NP = Non-parametric
UCL = Upper confidence limit

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Subsurface Soil - Entire Site
Exposure Medium: Subsurface Soil - Entire Site

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IOA	Benzo(a)pyrene Equivalents	mg/kg	0.116	0.253 (N)	0.584 J	0.253	mg/kg	95% KM (t) UCL	ProUCL 4.1.01
	Aluminum	mg/kg	5800	6800 (L)	7900	6800	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Arsenic	mg/kg	1.1	1.7 (N)	2.3	1.7	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Chromium VI	mg/kg	7.8	9.2 (N)	11	9.2	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Cobalt	mg/kg	3.7	4.7 (N)	6.8	4.7	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Iron	mg/kg	10000	13000 (N)	18000	13000	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Manganese	mg/kg	170	230 (N)	320 J	230	mg/kg	95% Student's-t UCL	ProUCL 4.1.01
	Thallium	mg/kg	NA(1)	NA(1)	0.09 J	0.09	mg/kg	Maximum Detected Concentration	(1)

1 - There are less than four detected concentrations. Reliable statistics cannot be computed. The maximum concentration was used as the EPC.

EU = Exposure unit
IOA = Industrial Operations Area
mg/kg = milligram per kilogram
N = Normal
UCL = Upper confidence limit

LIST OF TABLES
RAGS PART D TABLE 7
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS - INCLUDING CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Table No.

REASONABLE MAXIMUM EXPOSURES

7.1.RME Child Commercial Receptors
7.2.RME Adult Commercial Receptors
7.3.RME Child Residents
7.4.RME Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	4.8E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-05	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.5E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.0E-08	1.7E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.009
				Heptachlor Epoxide	0.160	mg/kg	3.8E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	3.4E-07	4.4E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.03
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	2.2E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.8E-07	2.5E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.04
				Aluminum	8,000	mg/kg	1.9E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	7.10	mg/kg	1.7E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.5E-06	1.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Chromium VI	93.8	mg/kg	1.2E-04	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	5.9E-05	2.6E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.09
				Cobalt	4.20	mg/kg	9.9E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	15,000	mg/kg	3.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	240	mg/kg	5.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	5.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.0E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								9.7E-05					0.4
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	3.5E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.5E-05	7.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.2E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	2.3E-08	1.4E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.007
				Heptachlor Epoxide	0.160	mg/kg	2.1E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.9E-07	2.5E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.02
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	3.6E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.7E-08	4.2E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.006
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	2.8E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.2E-07	3.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								2.6E-05					0.04
		Exposure Point Total									1.2E-04					0.4
	Exposure Medium Total										1.2E-04					0.4
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.1E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.2E-11	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	3.4E-14	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.9E-14	3.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	8.5E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	2.2E-13	1.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	4.9E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.9E-13	5.7E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.4E-9
				Aluminum	7.3E-7	mg/m^3	4.3E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Arsenic	6.5E-10	mg/m^3	3.8E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.6E-11	4.4E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	8.5E-9	mg/m^3	2.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	2.2E-08	5.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000006
				Cobalt	3.8E-10	mg/m^3	2.2E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.0E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	8.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	1.3E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	1.2E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Thallium	0.0E+0	mg/m^3	0.0E+00	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.2E-08					0.00005
		Exposure Point Total									2.2E-08					0.00005
	Exposure Medium Total										2.2E-08					0.00005
Medium Total											1.2E-04					0.4

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	2.6E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-06	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	3.5E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	7.0E-07	4.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.2
				Heptachlor Epoxide	0.007	mg/kg	1.6E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.4E-08	1.8E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.001
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	1.9E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.4E-07	2.2E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.03
				Aluminum	7,300	mg/kg	1.7E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.0E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	6.20	mg/kg	1.5E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-06	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Chromium VI	9.90	mg/kg	1.2E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	6.2E-06	2.7E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	4.10	mg/kg	9.6E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	15,000	mg/kg	3.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
				Lead	24.0	mg/kg	5.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	5.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.6E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
				Thallium	0.390	mg/kg	9.2E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-06	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.1
				Vanadium	19.0	mg/kg	4.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.2E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.01
			Exp. Route Total								1.1E-05					0.6
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.9E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-06	4.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	2.8E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.5E-07	3.2E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.2
				Heptachlor Epoxide	0.007	mg/kg	8.8E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	8.0E-09	1.0E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0008
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	3.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.1E-08	3.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.005
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	2.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	3.7E-07	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.390	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
				Vanadium	19.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								2.4E-06					0.2
		Exposure Point Total									1.4E-05					0.7
	Exposure Medium Total										1.4E-05					0.7
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3		(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3		(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3		(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3		(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	--		(mg/m^3)	4.0E-08	(mg/m^3)	--
				Aluminum	6.6E-7	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	5.0E-03	(mg/m^3)	--
				Arsenic	5.6E-10	mg/m^3		(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	1.5E-05	(mg/m^3)	--
				Chromium VI	9.0E-10	mg/m^3		(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	--		(mg/m^3)	1.0E-04	(mg/m^3)	--
				Cobalt	3.7E-10	mg/m^3		(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	--		(mg/m^3)	6.0E-06	(mg/m^3)	--
				Iron	1.4E-6	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	5.0E-05	(mg/m^3)	--
				Thallium	3.5E-11	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.7E-9	mg/m^3		(mg/m^3)	NA	$(ug/m^3)^{-1}$	--		(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								--					--
		Exposure Point Total									--					--
	Exposure Medium Total										--					--
Medium Total											1.4E-05					0.7

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	3.2E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.3E-06	6.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	1.6E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Arsenic	1.70	mg/kg	4.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.0E-07	4.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium VI	9.20	mg/kg	1.2E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	5.8E-06	2.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.008
				Cobalt	4.70	mg/kg	1.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.3E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Iron	13,000	mg/kg	3.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.6E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Manganese	230	mg/kg	5.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.3E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.03
				Thallium	0.090	mg/kg	2.1E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.5E-07	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.02
			Exp. Route Total								8.7E-06					0.2
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	2.3E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-06	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	6.7E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.0E-07	7.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese	230	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.090	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								1.8E-06					0.003
		Exposure Point Total									1.0E-05					0.2
	Exposure Medium Total										1.0E-05					0.2
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	7.2E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	7.9E-13	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	6.2E-7	mg/m^3	3.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.2E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000008
				Arsenic	1.5E-10	mg/m^3	9.1E-13	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.9E-12	1.1E-11	(mg/m^3)	1.5E-05	(mg/m^3)	7.1E-7
				Chromium VI	8.4E-10	mg/m^3	2.6E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	2.2E-09	5.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	5.7E-7
				Cobalt	4.3E-10	mg/m^3	2.5E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.3E-11	2.9E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000005
				Iron	1.2E-6	mg/m^3	6.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.1E-8	mg/m^3	1.2E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Thallium	8.2E-12	mg/m^3	4.8E-14	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.2E-09					0.00004
		Exposure Point Total									2.2E-09					0.00004
	Exposure Medium Total										2.2E-09					0.00004
Medium Total											1.0E-05					0.2
										Total of Receptor Risks Across All Media	1.5E-04				Total of Receptor Hazards Across All Media	1.3

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	7.0E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.1E-06	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	6.3E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.3E-08	1.8E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.0009
				Heptachlor Epoxide	0.160	mg/kg	1.6E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.5E-07	4.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.004
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	9.3E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.2E-07	2.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.004
				Aluminum	8,000	mg/kg	8.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	7.10	mg/kg	7.1E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.1E-06	2.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.007
				Chromium VI	93.8	mg/kg	1.7E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	8.7E-06	2.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.009
				Cobalt	4.20	mg/kg	4.2E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Iron	15,000	mg/kg	1.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.006
				Lead	240	mg/kg	2.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	2.2E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.5E-05	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.003
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								1.5E-05					0.04
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	7.3E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.3E-06	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	7.1E-09	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-08	2.1E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.001
				Heptachlor Epoxide	0.160	mg/kg	1.3E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.2E-07	3.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.003
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	2.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.9E-08	6.5E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0009
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	1.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.6E-07	5.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								5.7E-06					0.007
		Exposure Point Total									2.1E-05					0.05
	Exposure Medium Total										2.1E-05					0.05
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.6E-11	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	1.3E-13	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	7.7E-14	3.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	3.4E-13	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	8.9E-13	1.0E-12	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	2.0E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	7.5E-13	5.7E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.4E-9
				Aluminum	7.3E-7	mg/m^3	1.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.0E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000010
				Arsenic	6.5E-10	mg/m^3	1.5E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	6.5E-11	4.4E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	8.5E-9	mg/m^3	3.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-08	5.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000006
				Cobalt	3.8E-10	mg/m^3	9.0E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	8.1E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	3.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	5.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	4.7E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Thallium	0.0E+0	mg/m^3	0.0E+00	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-08					0.00005
		Exposure Point Total									3.1E-08					0.00005
	Exposure Medium Total										3.1E-08					0.00005
Medium Total											2.1E-05					0.05

TABLE 7.2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	3.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.8E-07	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.5E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.0E-07	4.4E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.007	mg/kg	6.7E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.1E-09	2.0E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0002
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	8.1E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.0E-07	2.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.003
				Aluminum	7,300	mg/kg	7.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	6.20	mg/kg	6.2E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	9.4E-07	1.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
				Chromium VI	9.90	mg/kg	1.8E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	9.1E-07	2.9E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0010
				Cobalt	4.10	mg/kg	4.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Iron	15,000	mg/kg	1.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	4.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.006
				Lead	24.0	mg/kg	2.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	2.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	7.0E-05	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.003
				Thallium	0.390	mg/kg	3.9E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-07	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.01
				Vanadium	19.0	mg/kg	1.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
			Exp. Route Total								2.5E-06					0.06
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	4.0E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.9E-07	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.7E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.4E-07	4.9E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.007	mg/kg	5.4E-10	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	4.9E-09	1.6E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0001
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	1.9E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.5E-08	5.6E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0008
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	1.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-07	4.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.390	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
				Vanadium	19.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								8.8E-07					0.03
		Exposure Point Total									3.4E-06					0.09
	Exposure Medium Total										3.4E-06					0.09
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	8.2E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.0E-13	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	3.2E-12	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.8E-12	9.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	1.4E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	3.7E-14	4.2E-14	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	1.7E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	6.5E-13	5.0E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.2E-9
				Aluminum	6.6E-7	mg/m^3	1.6E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.5E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000009
				Arsenic	5.6E-10	mg/m^3	1.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.7E-11	3.9E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium VI	9.0E-10	mg/m^3	3.9E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.3E-09	6.2E-11	(mg/m^3)	1.0E-04	(mg/m^3)	6.2E-7
				Cobalt	3.7E-10	mg/m^3	8.8E-12	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	7.9E-11	2.6E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000004
				Iron	1.4E-6	mg/m^3	3.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	9.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	5.1E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	5.1E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.5E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Thallium	3.5E-11	mg/m^3	8.3E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.7E-9	mg/m^3	4.1E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.4E-09					0.00005
		Exposure Point Total									3.4E-09					0.00005
	Exposure Medium Total										3.4E-09					0.00005
Medium Total											3.4E-06					0.09

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	4.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.4E-07	7.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	6.8E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.0E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Arsenic	1.70	mg/kg	1.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.6E-07	5.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium VI	9.20	mg/kg	1.7E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	8.5E-07	2.7E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0009
				Cobalt	4.70	mg/kg	4.7E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.005
				Iron	13,000	mg/kg	1.3E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.005
				Manganese	230	mg/kg	2.3E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.8E-05	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.003
				Thallium	0.090	mg/kg	9.1E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-08	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.003
			Exp. Route Total								1.4E-06					0.02
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	4.8E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-07	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	4.1E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.1E-08	1.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese	230	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.090	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								4.1E-07					0.0004
		Exposure Point Total									1.9E-06					0.02
	Exposure Medium Total										1.9E-06					0.02
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	9.9E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-12	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	6.2E-7	mg/m^3	1.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	4.2E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000008
				Arsenic	1.5E-10	mg/m^3	3.6E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.6E-11	1.1E-11	(mg/m^3)	1.5E-05	(mg/m^3)	7.1E-7
				Chromium VI	8.4E-10	mg/m^3	3.6E-11	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.0E-09	5.7E-11	(mg/m^3)	1.0E-04	(mg/m^3)	5.7E-7
				Cobalt	4.3E-10	mg/m^3	1.0E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	9.0E-11	2.9E-11	(mg/m^3)	6.0E-06	(mg/m^3)	0.000005
				Iron	1.2E-6	mg/m^3	2.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	8.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.1E-8	mg/m^3	4.9E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.4E-09	(mg/m^3)	5.0E-05	(mg/m^3)	0.00003
				Thallium	8.2E-12	mg/m^3	1.9E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-09					0.00004
		Exposure Point Total									3.1E-09					0.00004
	Exposure Medium Total										3.1E-09					0.00004
Medium Total											1.9E-06					0.02
											Total of Receptor Risks Across All Media					0.2

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	2.2E-05	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-04	4.9E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	6.9E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-07	8.1E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.04
				Heptachlor Epoxide	0.160	mg/kg	1.8E-07	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.6E-06	2.0E-06	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.2
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	1.0E-11	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.3E-06	1.2E-10	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.2
				Aluminum	8,000	mg/kg	8.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.1
				Arsenic	7.10	mg/kg	7.8E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.2E-05	9.1E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Chromium VI	93.8	mg/kg	5.5E-04	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.7E-04	1.2E-03	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.4
				Cobalt	4.20	mg/kg	4.6E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	15,000	mg/kg	1.6E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.3
				Lead	240	mg/kg	2.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	2.4E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.8E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								4.5E-04					1.7
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	8.1E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.9E-05	1.8E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	2.7E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.4E-08	3.2E-07	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.02
				Heptachlor Epoxide	0.160	mg/kg	4.9E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	4.5E-07	5.7E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.04
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	8.5E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.1E-07	9.9E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	6.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	9.8E-07	7.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								6.1E-05					0.10
		Exposure Point Total									5.1E-04					1.8
	Exposure Medium Total										5.1E-04					1.8
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	1.5E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.7E-10	3.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	4.7E-13	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	2.7E-13	5.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	1.2E-12	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	3.1E-12	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	6.9E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.6E-12	8.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	2.0E-8
				Aluminum	7.3E-7	mg/m^3	6.0E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.0E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	6.5E-10	mg/m^3	5.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.3E-10	6.2E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	8.5E-9	mg/m^3	3.7E-09	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-07	8.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00008
				Cobalt	3.8E-10	mg/m^3	3.1E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.8E-10	3.7E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	1.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	1.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	1.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	0.0E+0	mg/m^3	0.0E+00	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-07					0.0007
		Exposure Point Total									3.1E-07					0.0007
	Exposure Medium Total										3.1E-07					0.0007
Medium Total											5.1E-04					1.8

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.2E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.0E-06	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	1.6E-06	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.3E-06	1.9E-05	(mg/kg/day)	2.0E-05	(mg/kg/day)	1.0
				Heptachlor Epoxide	0.007	mg/kg	7.3E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.7E-08	8.6E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.007
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	8.8E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.1E-06	1.0E-10	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.1
				Aluminum	7,300	mg/kg	8.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.3E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.09
				Arsenic	6.20	mg/kg	6.8E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.0E-05	7.9E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.3
				Chromium VI	9.90	mg/kg	5.8E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.9E-05	1.3E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.10	mg/kg	4.5E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	15,000	mg/kg	1.6E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.9E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.3
				Lead	24.0	mg/kg	2.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	2.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.1E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
				Thallium	0.390	mg/kg	4.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.0E-06	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.5
				Vanadium	19.0	mg/kg	2.1E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.4E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.05
			Exp. Route Total								5.3E-05					2.6
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	4.5E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-06	9.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	6.4E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.3E-06	7.5E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.4
				Heptachlor Epoxide	0.007	mg/kg	2.1E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.9E-08	2.4E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.002
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	7.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	9.6E-08	8.6E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	5.7E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.6E-07	6.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.390	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
				Vanadium	19.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								5.5E-06					0.4
		Exposure Point Total									5.8E-05					3.0
	Exposure Medium Total										5.8E-05					3.0
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	8.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.2E-12	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	1.1E-11	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	6.4E-12	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	5.0E-14	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	1.3E-13	5.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	6.0E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.3E-12	7.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	1.7E-8
				Aluminum	6.6E-7	mg/m^3	5.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	5.6E-10	mg/m^3	4.6E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.0E-10	5.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	9.0E-10	mg/m^3	3.9E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.3E-08	8.6E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009
				Cobalt	3.7E-10	mg/m^3	3.1E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	2.8E-10	3.6E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	1.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	1.8E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	1.8E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	3.5E-11	mg/m^3	2.9E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.7E-9	mg/m^3	1.4E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.4E-08					0.0006
		Exposure Point Total									3.4E-08					0.0006
	Exposure Medium Total										3.4E-08					0.0006
Medium Total											5.8E-05					3.0

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	1.5E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-05	3.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	7.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	8.7E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.09
				Arsenic	1.70	mg/kg	1.9E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.8E-06	2.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Chromium VI	9.20	mg/kg	5.4E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.7E-05	1.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.70	mg/kg	5.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.0E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Iron	13,000	mg/kg	1.4E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Manganese	230	mg/kg	2.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.9E-03	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.1
				Thallium	0.090	mg/kg	9.9E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-06	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.1
			Exp. Route Total								4.0E-05					0.9
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	5.4E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.9E-06	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	1.6E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.3E-07	1.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese	230	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.090	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								4.2E-06					0.006
		Exposure Point Total									4.5E-05					0.9
	Exposure Medium Total										4.5E-05					0.9
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	1.0E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	6.2E-7	mg/m^3	5.1E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.9E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	1.5E-10	mg/m^3	1.3E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	5.5E-11	1.5E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.000010
				Chromium VI	8.4E-10	mg/m^3	3.7E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	3.1E-08	8.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000008
				Cobalt	4.3E-10	mg/m^3	3.5E-11	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	3.2E-10	4.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00007
				Iron	1.2E-6	mg/m^3	9.7E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.1E-8	mg/m^3	1.7E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	8.2E-12	mg/m^3	6.7E-13	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.8E-12	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-08					0.0006
		Exposure Point Total									3.1E-08					0.0006
	Exposure Medium Total										3.1E-08					0.0006
Medium Total											4.5E-05					0.9
										Total of Receptor Risks Across All Media	6.1E-04			Total of Receptor Hazards Across All Media		5.8

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - High Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	3.80	mg/kg	3.3E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-05	5.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	3.0E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	5.9E-08	8.6E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.004
				Heptachlor Epoxide	0.160	mg/kg	7.5E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	6.8E-07	2.2E-07	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.02
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	4.3E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.6E-07	1.3E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.02
				Aluminum	8,000	mg/kg	3.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Arsenic	7.10	mg/kg	3.3E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.0E-06	9.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	93.8	mg/kg	8.1E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.0E-05	1.3E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
				Cobalt	4.20	mg/kg	2.0E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	15,000	mg/kg	7.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	240	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	1.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.0E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.01
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								7.1E-05					0.2
			Dermal	Benzo(a)pyrene Equivalents	3.80	mg/kg	1.7E-06	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-05	2.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	0.063	mg/kg	1.7E-08	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	3.3E-08	4.8E-08	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.002
				Heptachlor Epoxide	0.160	mg/kg	3.0E-08	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	2.7E-07	8.7E-08	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.007
				2,3,7,8-TCDD Equivalents	9.2E-6	mg/kg	5.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.7E-08	1.5E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Aluminum	8,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	7.10	mg/kg	4.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.0E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Chromium VI	93.8	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.20	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	220	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								1.3E-05					0.02
		Exposure Point Total									8.4E-05					0.2
	Exposure Medium Total										8.4E-05					0.2
	Air	IOA - High Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	3.5E-10	mg/m^3	2.1E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.3E-10	3.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	5.7E-12	mg/m^3	1.9E-12	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	1.1E-12	5.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	1.5E-11	mg/m^3	4.8E-12	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	1.2E-11	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	8.4E-16	mg/m^3	2.7E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.0E-11	8.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	2.0E-8
				Aluminum	7.3E-7	mg/m^3	2.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.0E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	6.5E-10	mg/m^3	2.1E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	9.1E-10	6.2E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	8.5E-9	mg/m^3	5.1E-09	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.3E-07	8.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00008
				Cobalt	3.8E-10	mg/m^3	1.3E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.1E-09	3.7E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	4.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-8	mg/m^3	7.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.0E-8	mg/m^3	6.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.9E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	0.0E+0	mg/m^3	0.0E+00	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	0.0E+00	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.3E-07					0.0007
		Exposure Point Total									4.3E-07					0.0007
	Exposure Medium Total										4.3E-07					0.0007
Medium Total											8.4E-05					0.2

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Ingestion	Benzo(a)pyrene Equivalents	0.210	mg/kg	1.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-06	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	7.0E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	1.4E-06	2.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.1
				Heptachlor Epoxide	0.007	mg/kg	3.1E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	2.9E-08	9.2E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0007
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	3.8E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.9E-07	1.1E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.02
				Aluminum	7,300	mg/kg	3.4E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.0E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.010
				Arsenic	6.20	mg/kg	2.9E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.4E-06	8.5E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.03
				Chromium VI	9.90	mg/kg	8.5E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.3E-06	1.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Cobalt	4.10	mg/kg	1.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	15,000	mg/kg	7.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Lead	24.0	mg/kg	1.1E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.3E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.01
				Thallium	0.390	mg/kg	1.8E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	5.3E-07	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.05
				Vanadium	19.0	mg/kg	8.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	2.6E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.005
			Exp. Route Total								1.2E-05					0.3
			Dermal	Benzo(a)pyrene Equivalents	0.210	mg/kg	9.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.8E-07	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aroclor-1260	1.50	mg/kg	3.9E-07	(mg/kg/day)	2.0E+00	$(mg/kg/day)^{-1}$	7.9E-07	1.1E-06	(mg/kg/day)	2.0E-05	(mg/kg/day)	0.06
				Heptachlor Epoxide	0.007	mg/kg	1.3E-09	(mg/kg/day)	9.1E+00	$(mg/kg/day)^{-1}$	1.1E-08	3.7E-09	(mg/kg/day)	1.3E-05	(mg/kg/day)	0.0003
				2,3,7,8-TCDD Equivalents	8.0E-6	mg/kg	4.5E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.8E-08	1.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Aluminum	7,300	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	6.20	mg/kg	3.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.2E-07	1.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium VI	9.90	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.10	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	15,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Lead	24.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Manganese	240	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.390	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
				Vanadium	19.0	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	5.0E-03	(mg/kg/day)	--
			Exp. Route Total								2.1E-06					0.06
		Exposure Point Total									1.4E-05					0.3
	Exposure Medium Total										1.4E-05					0.3
	Air	IOA - Low Concentrations Area	Inhalation	Benzo(a)pyrene Equivalents	1.9E-11	mg/m^3	1.2E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.3E-11	1.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aroclor-1260	1.4E-10	mg/m^3	4.5E-11	(mg/m^3)	5.7E-04	$(ug/m^3)^{-1}$	2.6E-11	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Heptachlor Epoxide	6.1E-13	mg/m^3	2.0E-13	(mg/m^3)	2.6E-03	$(ug/m^3)^{-1}$	5.2E-13	5.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				2,3,7,8-TCDD Equivalents	7.3E-16	mg/m^3	2.4E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	9.1E-12	7.0E-16	(mg/m^3)	4.0E-08	(mg/m^3)	1.7E-8
				Aluminum	6.6E-7	mg/m^3	2.2E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	6.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	5.6E-10	mg/m^3	1.9E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	8.0E-10	5.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
				Chromium VI	9.0E-10	mg/m^3	5.4E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.6E-08	8.6E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000009
				Cobalt	3.7E-10	mg/m^3	1.2E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.1E-09	3.6E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00006
				Iron	1.4E-6	mg/m^3	4.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Lead	2.2E-9	mg/m^3	7.2E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.2E-8	mg/m^3	7.2E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.1E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	3.5E-11	mg/m^3	1.2E-11	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	3.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	1.7E-9	mg/m^3	5.7E-10	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.7E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.8E-08					0.0006
		Exposure Point Total									4.8E-08					0.0006
	Exposure Medium Total										4.8E-08					0.0006
Medium Total											1.4E-05					0.3

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Ingestion	Benzo(a)pyrene Equivalents	0.253	mg/kg	2.2E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-06	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	3.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	9.3E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.009
				Arsenic	1.70	mg/kg	8.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.2E-06	2.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.008
				Chromium VI	9.20	mg/kg	7.9E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	4.0E-06	1.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Cobalt	4.70	mg/kg	2.2E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	6.4E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Iron	13,000	mg/kg	6.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Manganese	230	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	3.2E-04	(mg/kg/day)	2.4E-02	(mg/kg/day)	0.01
				Thallium	0.090	mg/kg	4.2E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	1.2E-07	(mg/kg/day)	1.0E-05	(mg/kg/day)	0.01
			Exp. Route Total								6.7E-06					0.09
			Dermal	Benzo(a)pyrene Equivalents	0.253	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.2E-07	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	6,800	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Arsenic	1.70	mg/kg	9.6E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.4E-07	2.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0009
				Chromium VI	9.20	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Cobalt	4.70	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Iron	13,000	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Manganese	230	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	9.6E-04	(mg/kg/day)	--
				Thallium	0.090	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	--	0.0E+00	(mg/kg/day)	1.0E-05	(mg/kg/day)	--
			Exp. Route Total								9.7E-07					0.0009
		Exposure Point Total									7.7E-06					0.09
	Exposure Medium Total										7.7E-06					0.09
	Air	IOA - Entire Site	Inhalation	Benzo(a)pyrene Equivalents	2.3E-11	mg/m^3	1.4E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	6.2E-7	mg/m^3	2.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	5.9E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.0001
				Arsenic	1.5E-10	mg/m^3	5.1E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.2E-10	1.5E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.000010
				Chromium VI	8.4E-10	mg/m^3	5.0E-10	(mg/m^3)	8.4E-02	$(ug/m^3)^{-1}$	4.2E-08	8.0E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000008
				Cobalt	4.3E-10	mg/m^3	1.4E-10	(mg/m^3)	9.0E-03	$(ug/m^3)^{-1}$	1.3E-09	4.1E-10	(mg/m^3)	6.0E-06	(mg/m^3)	0.00007
				Iron	1.2E-6	mg/m^3	3.9E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	1.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Manganese	2.1E-8	mg/m^3	6.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	2.0E-08	(mg/m^3)	5.0E-05	(mg/m^3)	0.0004
				Thallium	8.2E-12	mg/m^3	2.7E-12	(mg/m^3)	NA	$(ug/m^3)^{-1}$	--	7.8E-12	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.4E-08					0.0006
		Exposure Poin: Total									4.4E-08					0.0006
	Exposure Medium Total										4.4E-08					0.0006
Medium Total											7.8E-06					0.10
										Total of Receptor Risks Across All Media	1.1E-04				Total of Receptor Hazards Across All Media	0.6

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

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SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - INCLUDING CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Table No.

REASONABLE MAXIMUM EXPOSURES

9.1.RME Child Commercial Receptors
9.2.RME Adult Commercial Receptors
9.3.RME Lifelong Commercial Receptors
9.4.RME Child Residents
9.5.RME Adult Residents
9.6.RME Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	3E-05	--	3E-05	--	6E-05	NA	--	--	--	--
			Aroclor-1260	3E-08	--	2E-08	--	5E-08	Immune	0.009	--	0.007	0.02
			Heptachlor Epoxide	3E-07	--	2E-07	--	5E-07	Liver	0.03	--	0.02	0.05
			2,3,7,8-TCDD Equivalents	3E-07	--	5E-08	--	3E-07	Reproductive	0.04	--	0.006	0.04
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Arsenic	3E-06	--	4E-07	--	3E-06	Skin, CVS	0.06	--	0.01	0.08
			Chromium VI	6E-05	--	- -	--	6E-05	None Specified	0.09	--	--	0.09
			Cobalt	- -	--	- -	--	- -	Thyroid	0.04	--	--	0.04
			Iron	- -	--	- -	--	- -	GS	0.06	--	--	0.06
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Chemical Total	1E-04	--	3E-05	--	1E-04		0.4	--	0.04	0.4
		Exposure Point Total						1E-04					0.4
	Exposure Medium Total							1E-04					0.4
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aroclor-1260	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Heptachlor Epoxide	--	2E-13	--	--	2E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	2E-13	--	--	2E-13	Reproductive, Respi	--	1E-9	--	1E-9
			Aluminum	--	- -	--	--	- -	CNS	--	0.000010	--	0.000010
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	2E-08	--	--	2E-08	Respiratory	--	0.000006	--	0.000006
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-08	--	--	2E-08		- -	0.00005	- -	0.00005
		Exposure Point Total						2E-08					0.00005
	Exposure Medium Total							2E-08					0.00005
Medium Total								1E-04					0.4

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	2E-06	--	1E-06	--	3E-06	NA	--	--	--	--
			Aroclor-1260	7E-07	--	6E-07	--	1E-06	Immune	0.2	--	0.2	0.4
			Heptachlor Epoxide	1E-08	--	8E-09	--	2E-08	Liver	0.001	--	0.0008	0.002
			2,3,7,8-TCDD Equivalents	2E-07	--	4E-08	--	3E-07	Reproductive	0.03	--	0.005	0.04
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Arsenic	2E-06	--	4E-07	--	3E-06	Skin, CVS	0.06	--	0.010	0.07
			Chromium VI	6E-06	--	- -	--	6E-06	None Specified	0.009	--	--	0.009
			Cobalt	- -	--	- -	--	- -	Thyroid	0.04	--	--	0.04
			Iron	- -	--	- -	--	- -	GS	0.06	--	--	0.06
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Thallium	- -	--	- -	--	- -	Skin	0.1	--	--	0.1
			Vanadium	- -	--	- -	--	- -	Kidney	0.01	--	--	0.01
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.6	--	0.2	0.7
		Exposure Point Total						1E-05					0.7
	Exposure Medium Total							1E-05					0.7
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	- -	--	--	- -	NA	--	--	--	--
			Aroclor-1260	--	- -	--	--	- -	NA	--	--	--	--
			Heptachlor Epoxide	--	- -	--	--	- -	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	- -	--	--	- -	Reproductive, Respi	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	--	--	--
			Arsenic	--	- -	--	--	- -	NA	--	--	--	--
			Chromium VI	--	- -	--	--	- -	Respiratory	--	--	--	--
			Cobalt	--	- -	--	--	- -	Respiratory	--	--	--	--
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	--	--	--
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	- -	--	--	- -		- -	--	- -	--
		Exposure Point Total						- -					--
	Exposure Medium Total							- -					--
Medium Total								1E-05					0.7

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	2E-06	--	2E-06	--	4E-06	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Arsenic	6E-07	--	1E-07	--	7E-07	Skin, CVS	0.02	--	0.003	0.02
			Chromium VI	6E-06	--	- -	--	6E-06	None Specified	0.008	--	--	0.008
			Cobalt	- -	--	- -	--	- -	Thyroid	0.04	--	--	0.04
			Iron	- -	--	- -	--	- -	GS	0.05	--	--	0.05
			Manganese	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Thallium	- -	--	- -	--	- -	Skin	0.02	--	--	0.02
			Chemical Total	9E-06	--	2E-06	--	1E-05		0.2	--	0.003	0.2
		Exposure Point Total						1E-05					0.2
	Exposure Medium Total							1E-05					0.2
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.000008	--	0.000008
			Arsenic	--	4E-12	--	--	4E-12	NA	--	0.0000007	--	0.0000007
			Chromium VI	--	2E-09	--	--	2E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	2E-11	--	--	2E-11	Respiratory	--	0.000005	--	0.000005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-09	--	--	2E-09		- -	0.00004	- -	0.00004
		Exposure Point Total						2E-09					0.00004
	Exposure Medium Total							2E-09					0.00004
Medium Total								1E-05					0.2
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	1

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.1
Total CVS HI	0.2
Total GS HI	0.2
Total Immune HI	0.4
Total Kidney HI	0.01
Total Liver HI	0.05
Total Respiratory HI	0.00002
Total None Specified HI	0.1
Total Skin HI	0.3
Total Thyroid HI	0.1
Total Reproductive HI	0.08

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	5E-06	--	5E-06	--	1E-05	NA	--	--	--	--
			Aroclor-1260	1E-08	--	1E-08	--	3E-08	Immune	0.0009	--	0.001	0.002
			Heptachlor Epoxide	1E-07	--	1E-07	--	3E-07	Liver	0.004	--	0.003	0.006
			2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	1E-07	Reproductive	0.004	--	0.0009	0.005
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Arsenic	1E-06	--	3E-07	--	1E-06	Skin, CVS	0.007	--	0.002	0.009
			Chromium VI	9E-06	--	- -	--	9E-06	None Specified	0.009	--	--	0.009
			Cobalt	- -	--	- -	--	- -	Thyroid	0.004	--	--	0.004
			Iron	- -	--	- -	--	- -	GS	0.006	--	--	0.006
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Chemical Total	2E-05	--	6E-06	--	2E-05		0.04	--	0.007	0.05
		Exposure Point Total						2E-05					0.05
	Exposure Medium Total							2E-05					0.05
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Aroclor-1260	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Heptachlor Epoxide	--	9E-13	--	--	9E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	7E-13	--	--	7E-13	Reproductive, Respi	--	1E-9	--	1E-9
			Aluminum	--	- -	--	--	- -	CNS	--	0.000010	--	0.000010
			Arsenic	--	7E-11	--	--	7E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000006	--	0.000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.00005	- -	0.00005
		Exposure Point Total						3E-08					0.00005
	Exposure Medium Total							3E-08					0.00005
Medium Total								2E-05					0.05

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	3E-07	--	3E-07	--	6E-07	NA	--	--	--	--
			Aroclor-1260	3E-07	--	3E-07	--	6E-07	Immune	0.02	--	0.02	0.05
			Heptachlor Epoxide	6E-09	--	5E-09	--	1E-08	Liver	0.0002	--	0.0001	0.0003
			2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	1E-07	Reproductive	0.003	--	0.0008	0.004
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Arsenic	9E-07	--	2E-07	--	1E-06	Skin, CVS	0.006	--	0.001	0.008
			Chromium VI	9E-07	--	- -	--	9E-07	None Specified	0.0010	--	--	0.0010
			Cobalt	- -	--	- -	--	- -	Thyroid	0.004	--	--	0.004
			Iron	- -	--	- -	--	- -	GS	0.006	--	--	0.006
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Thallium	- -	--	- -	--	- -	Skin	0.01	--	--	0.01
			Vanadium	- -	--	- -	--	- -	Kidney	0.001	--	--	0.001
			Chemical Total	3E-06	--	9E-07	--	3E-06		0.06	--	0.03	0.09
		Exposure Point Total						3E-06					0.09
	Exposure Medium Total							3E-06					0.09
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Aroclor-1260	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	4E-14	--	--	4E-14	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	6E-13	--	--	6E-13	Reproductive, Respi	--	1E-9	--	1E-9
			Aluminum	--	- -	--	--	- -	CNS	--	0.000009	--	0.000009
			Arsenic	--	6E-11	--	--	6E-11	NA	--	0.000003	--	0.000003
			Chromium VI	--	3E-09	--	--	3E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	8E-11	--	--	8E-11	Respiratory	--	0.000004	--	0.000004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		- -	0.00005	- -	0.00005
		Exposure Point Total						3E-09					0.00005
	Exposure Medium Total							3E-09					0.00005
Medium Total								3E-06					0.09

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
PAGE 3 OF 3

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	3E-07	--	4E-07	--	7E-07	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Arsenic	3E-07	--	6E-08	--	3E-07	Skin, CVS	0.002	--	0.0004	0.002
			Chromium VI	8E-07	--	- -	--	8E-07	None Specified	0.0009	--	--	0.0009
			Cobalt	- -	--	- -	--	- -	Thyroid	0.005	--	--	0.005
			Iron	- -	--	- -	--	- -	GS	0.005	--	--	0.005
			Manganese	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Thallium	- -	--	- -	--	- -	Skin	0.003	--	--	0.003
			Chemical Total	1E-06	--	4E-07	--	2E-06		0.02	--	0.0004	0.02
		Exposure Point Total						2E-06					0.02
	Exposure Medium Total							2E-06					0.02
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.000008	--	0.000008
			Arsenic	--	2E-11	--	--	2E-11	NA	--	0.0000007	--	0.0000007
			Chromium VI	--	3E-09	--	--	3E-09	Respiratory	--	0.0000006	--	0.0000006
			Cobalt	--	9E-11	--	--	9E-11	Respiratory	--	0.000005	--	0.000005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-09	--	--	3E-09		- -	0.00004	- -	0.00004
		Exposure Point Total						3E-09					0.00004
	Exposure Medium Total							3E-09					0.00004
Medium Total								2E-06					0.02
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	0.2

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.02
Total CVS HI	0.02
Total GS HI	0.02
Total Immune HI	0.05
Total Kidney HI	0.001
Total Liver HI	0.007
Total Respiratory HI	0.00002
Total None Specified HI	0.01
Total Skin HI	0.03
Total Thyroid HI	0.01
Total Reproductive HI	0.009

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	4E-05	--	3E-05	--	7E-05					
			Aroclor-1260	4E-08	--	4E-08	--	8E-08					
			Heptachlor Epoxide	5E-07	--	3E-07	--	8E-07					
			2,3,7,8-TCDD Equivalents	4E-07	--	8E-08	--	5E-07					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	4E-06	--	7E-07	--	4E-06					
			Chromium VI	7E-05	--	- -	--	7E-05					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Thallium	- -	--	- -	--	- -					
			Chemical Total	1E-04	--	3E-05	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	3E-11	--	--	3E-11					
			Aroclor-1260	--	1E-13	--	--	1E-13					
			Heptachlor Epoxide	--	1E-12	--	--	1E-12					
			2,3,7,8-TCDD Equivalents	--	9E-13	--	--	9E-13					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	8E-11	--	--	8E-11					
			Chromium VI	--	5E-08	--	--	5E-08					
			Cobalt	--	1E-10	--	--	1E-10					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Thallium	--	- -	--	--	- -					
			Chemical Total	--	5E-08	--	--	5E-08					
		Exposure Point Total						5E-08					
	Exposure Medium Total							5E-08					
Medium Total								1E-04					

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	2E-06	--	2E-06	--	4E-06					
			Aroclor-1260	1E-06	--	9E-07	--	2E-06					
			Heptachlor Epoxide	2E-08	--	1E-08	--	3E-08					
			2,3,7,8-TCDD Equivalents	3E-07	--	7E-08	--	4E-07					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	3E-06	--	6E-07	--	4E-06					
			Chromium VI	7E-06	--	- -	--	7E-06					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Thallium	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	1E-05	--	3E-06	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-13	--	--	9E-13					
			Aroclor-1260	--	2E-12	--	--	2E-12					
			Heptachlor Epoxide	--	4E-14	--	--	4E-14					
			2,3,7,8-TCDD Equivalents	--	6E-13	--	--	6E-13					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	6E-11	--	--	6E-11					
			Chromium VI	--	3E-09	--	--	3E-09					
			Cobalt	--	8E-11	--	--	8E-11					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Thallium	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	3E-09	--	--	3E-09					
		Exposure Point Total						3E-09					
	Exposure Medium Total							3E-09					
Medium Total								2E-05					

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Commercial User
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	3E-06	--	2E-06	--	5E-06					
			Aluminum	--	--	--	--	--					
			Arsenic	9E-07	--	2E-07	--	1E-06					
			Chromium VI	7E-06	--	--	--	7E-06					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	1E-05	--	2E-06	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	2E-12	--	--	2E-12					
			Aluminum	--	--	--	--	--					
			Arsenic	--	2E-11	--	--	2E-11					
			Chromium VI	--	5E-09	--	--	5E-09					
			Cobalt	--	1E-10	--	--	1E-10					
			Iron	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	--	5E-09	--	--	5E-09					
		Exposure Point Total						5E-09					
	Exposure Medium Total							5E-09					
Medium Total								1E-05					
Receptor Total							Receptor Risk Total	2E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-04	--	6E-05	--	2E-04	NA	--	--	--	--
			Aroclor-1260	1E-07	--	5E-08	--	2E-07	Immune	0.04	--	0.02	0.06
			Heptachlor Epoxide	2E-06	--	4E-07	--	2E-06	Liver	0.2	--	0.04	0.2
			2,3,7,8-TCDD Equivalents	1E-06	--	1E-07	--	1E-06	Reproductive	0.2	--	0.01	0.2
			Aluminum	--	--	--	--	--	CNS	0.1	--	--	0.1
			Arsenic	1E-05	--	1E-06	--	1E-05	Skin, CVS	0.3	--	0.03	0.3
			Chromium VI	3E-04	--	--	--	3E-04	None Specified	0.4	--	--	0.4
			Cobalt	--	--	--	--	--	Thyroid	0.2	--	--	0.2
			Iron	--	--	--	--	--	GS	0.3	--	--	0.3
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	0.1	--	--	0.1
			Thallium	--	--	--	--	--	Skin	--	--	--	--
			Chemical Total	5E-04	--	6E-05	--	5E-04		2	--	0.10	2
		Exposure Point Total						5E-04					2
	Exposure Medium Total							5E-04					2
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Aroclor-1260	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Heptachlor Epoxide	--	3E-12	--	--	3E-12	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	3E-12	--	--	3E-12	Reproductive, Respi	--	2E-8	--	2E-8
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	3E-07	--	--	3E-07	Respiratory	--	0.00008	--	0.00008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00006	--	0.00006
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	0.0004	--	0.0004
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	3E-07	--	--	3E-07		--	0.0007	--	0.0007
		Exposure Point Total						3E-07					0.0007
	Exposure Medium Total							3E-07					0.0007
Medium Total								5E-04					2

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	9E-06	--	3E-06	--	1E-05	NA	--	--	--	--
			Aroclor-1260	3E-06	--	1E-06	--	5E-06	Immune	1.0	--	0.4	1
			Heptachlor Epoxide	7E-08	--	2E-08	--	9E-08	Liver	0.007	--	0.002	0.008
			2,3,7,8-TCDD Equivalents	1E-06	--	1E-07	--	1E-06	Reproductive	0.1	--	0.01	0.2
			Aluminum	- -	--	- -	--	- -	CNS	0.09	--	--	0.09
			Arsenic	1E-05	--	9E-07	--	1E-05	Skin, CVS	0.3	--	0.02	0.3
			Chromium VI	3E-05	--	- -	--	3E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.3	--	--	0.3
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.1	--	--	0.1
			Thallium	- -	--	- -	--	- -	Skin	0.5	--	--	0.5
			Vanadium	- -	--	- -	--	- -	Kidney	0.05	--	--	0.05
			Chemical Total	5E-05	--	6E-06	--	6E-05		3	--	0.4	3
		Exposure Point Total						6E-05					3
	Exposure Medium Total							6E-05					3
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Aroclor-1260	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	1E-13	--	--	1E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	2E-12	--	--	2E-12	Reproductive, Respir	--	2E-8	--	2E-8
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00006	--	0.00006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.0006	- -	0.0006
		Exposure Point Total						3E-08					0.0006
	Exposure Medium Total							3E-08					0.0006
Medium Total								6E-05					3

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	1E-05	--	4E-06	--	1E-05	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.09	--	--	0.09
			Arsenic	3E-06	--	2E-07	--	3E-06	Skin, CVS	0.07	--	0.006	0.08
			Chromium VI	3E-05	--	- -	--	3E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.2	--	--	0.2
			Manganese	- -	--	- -	--	- -	CNS	0.1	--	--	0.1
			Thallium	- -	--	- -	--	- -	Skin	0.1	--	--	0.1
			Chemical Total	4E-05	--	4E-06	--	4E-05		0.9	--	0.006	0.9
		Exposure Point Total						4E-05					0.9
	Exposure Medium Total							4E-05					0.9
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	5E-11	--	--	5E-11	NA	--	0.000010	--	0.000010
			Chromium VI	--	3E-08	--	--	3E-08	Respiratory	--	0.000008	--	0.000008
			Cobalt	--	3E-10	--	--	3E-10	Respiratory	--	0.00007	--	0.00007
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.0006	- -	0.0006
		Exposure Point Total						3E-08					0.0006
	Exposure Medium Total							3E-08					0.0006
Medium Total								4E-05					0.9
Receptor Total							Receptor Risk Total	6E-04				Receptor HI Total	6

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.7
Total CVS HI	0.7
Total GS HI	0.8
Total Immune HI	1
Total Kidney HI	0.05
Total Liver HI	0.2
Total Respiratory HI	0.0003
Total None Specified HI	0.5
Total Skin HI	1
Total Thyroid HI	0.6
Total Reproductive HI	0.3

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-05	--	1E-05	--	4E-05	NA	--	--	--	--
			Aroclor-1260	6E-08	--	3E-08	--	9E-08	Immune	0.004	--	0.002	0.007
			Heptachlor Epoxide	7E-07	--	3E-07	--	1E-06	Liver	0.02	--	0.007	0.02
			2,3,7,8-TCDD Equivalents	6E-07	--	7E-08	--	6E-07	Reproductive	0.02	--	0.002	0.02
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Arsenic	5E-06	--	6E-07	--	6E-06	Skin, CVS	0.03	--	0.004	0.04
			Chromium VI	4E-05	--	- -	--	4E-05	None Specified	0.04	--	--	0.04
			Cobalt	- -	--	- -	--	- -	Thyroid	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Lead	- -	--	- -	--	- -	NA	--	--	--	--
			Manganese	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Chemical Total	7E-05	--	1E-05	--	8E-05		0.2	--	0.02	0.2
		Exposure Point Total						8E-05					0.2
	Exposure Medium Total							8E-05					0.2
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Aroclor-1260	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Heptachlor Epoxide	--	1E-11	--	--	1E-11	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11	Reproductive, Respir	--	2E-8	--	2E-8
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	9E-10	--	--	9E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	4E-07	--	--	4E-07	Respiratory	--	0.00008	--	0.00008
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Lead	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	4E-07	--	--	4E-07		- -	0.0007	- -	0.0007
		Exposure Point Total						4E-07					0.0007
	Exposure Medium Total							4E-07					0.0007
Medium Total								8E-05					0.2

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	1E-06	--	7E-07	--	2E-06	NA	--	--	--	--
			Aroclor-1260	1E-06	--	8E-07	--	2E-06	Immune	0.1	--	0.06	0.2
			Heptachlor Epoxide	3E-08	--	1E-08	--	4E-08	Liver	0.0007	--	0.0003	0.0010
			2,3,7,8-TCDD Equivalents	5E-07	--	6E-08	--	5E-07	Reproductive	0.02	--	0.002	0.02
			Aluminum	--	--	--	--	--	CNS	0.010	--	--	0.010
			Arsenic	4E-06	--	5E-07	--	5E-06	Skin, CVS	0.03	--	0.003	0.03
			Chromium VI	4E-06	--	--	--	4E-06	None Specified	0.005	--	--	0.005
			Cobalt	--	--	--	--	--	Thyroid	0.02	--	--	0.02
			Iron	--	--	--	--	--	GS	0.03	--	--	0.03
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	0.01	--	--	0.01
			Thallium	--	--	--	--	--	Skin	0.05	--	--	0.05
			Vanadium	--	--	--	--	--	Kidney	0.005	--	--	0.005
			Chemical Total	1E-05	--	2E-06	--	1E-05		0.3	--	0.06	0.3
		Exposure Point Total						1E-05					0.3
	Exposure Medium Total							1E-05					0.3
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aroclor-1260	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Heptachlor Epoxide	--	5E-13	--	--	5E-13	NA	--	--	--	--
			2,3,7,8-TCDD Equivalents	--	9E-12	--	--	9E-12	Reproductive, Respi	--	2E-8	--	2E-8
			Aluminum	--	--	--	--	--	CNS	--	0.0001	--	0.0001
			Arsenic	--	8E-10	--	--	8E-10	NA	--	0.00004	--	0.00004
			Chromium VI	--	5E-08	--	--	5E-08	Respiratory	--	0.000009	--	0.000009
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00006	--	0.00006
			Iron	--	--	--	--	--	NA	--	--	--	--
			Lead	--	--	--	--	--	NA	--	--	--	--
			Manganese	--	--	--	--	--	CNS	--	0.0004	--	0.0004
			Thallium	--	--	--	--	--	NA	--	--	--	--
			Vanadium	--	--	--	--	--	NA	--	--	--	--
			Chemical Total	--	5E-08	--	--	5E-08		--	0.0006	--	0.0006
		Exposure Point Total						5E-08					0.0006
	Exposure Medium Total							5E-08					0.0006
Medium Total								1E-05					0.3

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	2E-06	--	8E-07	--	2E-06	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.009	--	--	0.009
			Arsenic	1E-06	--	1E-07	--	1E-06	Skin, CVS	0.008	--	0.0009	0.009
			Chromium VI	4E-06	--	- -	--	4E-06	None Specified	0.004	--	--	0.004
			Cobalt	- -	--	- -	--	- -	Thyroid	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Manganese	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Thallium	- -	--	- -	--	- -	Skin	0.01	--	--	0.01
			Chemical Total	7E-06	--	1E-06	--	8E-06		0.09	--	0.0009	0.09
		Exposure Point Total						8E-06					0.09
	Exposure Medium Total							8E-06					0.09
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0001	--	0.0001
			Arsenic	--	2E-10	--	--	2E-10	NA	--	0.000010	--	0.000010
			Chromium VI	--	4E-08	--	--	4E-08	Respiratory	--	0.000008	--	0.000008
			Cobalt	--	1E-09	--	--	1E-09	Respiratory	--	0.00007	--	0.00007
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Manganese	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Thallium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	4E-08	--	--	4E-08		- -	0.0006	- -	0.0006
		Exposure Point Total						4E-08					0.0006
	Exposure Medium Total							4E-08					0.0006
Medium Total								8E-06					0.10
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	0.6

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total CNS HI	0.07
Total CVS HI	0.08
Total GS HI	0.08
Total Immune HI	0.2
Total Kidney HI	0.005
Total Liver HI	0.02
Total Respiratory HI	0.0003
Total None Specified HI	0.05
Total Skin HI	0.1
Total Thyroid HI	0.06
Total Reproductive HI	0.04

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	2E-04	--	7E-05	--	3E-04					
			Aroclor-1260	2E-07	--	9E-08	--	3E-07					
			Heptachlor Epoxide	2E-06	--	7E-07	--	3E-06					
			2,3,7,8-TCDD Equivalents	2E-06	--	2E-07	--	2E-06					
			Aluminum	--	--	--	--	--					
			Arsenic	2E-05	--	2E-06	--	2E-05					
			Chromium VI	3E-04	--	--	--	3E-04					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	5E-04	--	7E-05	--	6E-04					
		Exposure Point Total						6E-04					
	Exposure Medium Total							6E-04					
	Air	IOA - High Concentrations Area	Benzo(a)pyrene Equivalents	--	4E-10	--	--	4E-10					
			Aroclor-1260	--	1E-12	--	--	1E-12					
			Heptachlor Epoxide	--	2E-11	--	--	2E-11					
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11					
			Aluminum	--	--	--	--	--					
			Arsenic	--	1E-09	--	--	1E-09					
			Chromium VI	--	7E-07	--	--	7E-07					
			Cobalt	--	1E-09	--	--	1E-09					
			Iron	--	--	--	--	--					
			Lead	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	--	7E-07	--	--	7E-07					
		Exposure Point Total						7E-07					
	Exposure Medium Total							7E-07					
Medium Total								6E-04					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	1E-05	--	4E-06	--	1E-05					
			Aroclor-1260	5E-06	--	2E-06	--	7E-06					
			Heptachlor Epoxide	1E-07	--	3E-08	--	1E-07					
			2,3,7,8-TCDD Equivalents	2E-06	--	2E-07	--	2E-06					
			Aluminum	- -	--	- -	--	- -					
			Arsenic	1E-05	--	1E-06	--	2E-05					
			Chromium VI	3E-05	--	- -	--	3E-05					
			Cobalt	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Lead	- -	--	- -	--	- -					
			Manganese	- -	--	- -	--	- -					
			Thallium	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	6E-05	--	8E-06	--	7E-05					
		Exposure Point Total						7E-05					
	Exposure Medium Total							7E-05					
	Air	IOA - Low Concentrations Area	Benzo(a)pyrene Equivalents	--	2E-11	--	--	2E-11					
			Aroclor-1260	--	3E-11	--	--	3E-11					
			Heptachlor Epoxide	--	7E-13	--	--	7E-13					
			2,3,7,8-TCDD Equivalents	--	1E-11	--	--	1E-11					
			Aluminum	--	- -	--	--	- -					
			Arsenic	--	1E-09	--	--	1E-09					
			Chromium VI	--	8E-08	--	--	8E-08					
			Cobalt	--	1E-09	--	--	1E-09					
			Iron	--	- -	--	--	- -					
			Lead	--	- -	--	--	- -					
			Manganese	--	- -	--	--	- -					
			Thallium	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	8E-08	--	--	8E-08					
		Exposure Point Total						8E-08					
	Exposure Medium Total							8E-08					
Medium Total								7E-05					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Future
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	IOA - Entire Site	Benzo(a)pyrene Equivalents	1E-05	--	5E-06	--	2E-05					
			Aluminum	--	--	--	--	--					
			Arsenic	4E-06	--	4E-07	--	4E-06					
			Chromium VI	3E-05	--	--	--	3E-05					
			Cobalt	--	--	--	--	--					
			Iron	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	5E-05	--	5E-06	--	5E-05					
		Exposure Point Total						5E-05					
	Exposure Medium Total							5E-05					
	Air	IOA - Entire Site	Benzo(a)pyrene Equivalents	--	3E-11	--	--	3E-11					
			Aluminum	--	--	--	--	--					
			Arsenic	--	3E-10	--	--	3E-10					
			Chromium VI	--	7E-08	--	--	7E-08					
			Cobalt	--	2E-09	--	--	2E-09					
			Iron	--	--	--	--	--					
			Manganese	--	--	--	--	--					
			Thallium	--	--	--	--	--					
			Chemical Total	--	8E-08	--	--	8E-08					
		Exposure Point Total						8E-08					
	Exposure Medium Total							8E-08					
Medium Total								5E-05					
Receptor Total							Receptor Risk Total	7E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

ProUCL Output – Surface Soil – Chemicals Omitted on the Basis of Background

PROUCL OUTPUT - HGH CONCENTRATIONS AREA SURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Vanadium

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	15		

Raw Statistics		Log-transformed Statistics	
Minimum	16.1	Minimum of Log Data	2.779
Maximum	45.2	Maximum of Log Data	3.811
Mean	28.94	Mean of log Data	3.312
Geometric Mean	27.44	SD of log Data	0.355
Median	27.9		
SD	9.694		
Std. Error of Mean	3.231		
Coefficient of Variation	0.335		
Skewness	0.195		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.962	Shapiro Wilk Test Statistic	0.943
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	34.95	95% H-UCL	37.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	44.06
95% Adjusted-CLT UCL (Chen-1995)	34.48	97.5% Chebyshev (MVUE) UCL	50.57
95% Modified-t UCL (Johnson-1978)	34.99	99% Chebyshev (MVUE) UCL	63.37

Gamma Distribution Test		Data Distribution
k star (bias corrected)	6.416	Data appear Normal at 5% Significance Level
Theta Star	4.511	
MLE of Mean	28.94	
MLE of Standard Deviation	11.43	
nu star	115.5	

PROUCL OUTPUT - HGH CONCENTRATIONS AREA SURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Approximate Chi Square Value (.05)	91.68	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	34.26
Adjusted Chi Square Value	87.22	95% Jackknife UCL	34.95
		95% Standard Bootstrap UCL	34.03
Anderson-Darling Test Statistic	0.238	95% Bootstrap-t UCL	35.07
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL	34.61
Kolmogorov-Smirnov Test Statistic	0.15	95% Percentile Bootstrap UCL	33.96
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	34.27
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	43.03
		97.5% Chebyshev(Mean, Sd) UCL	49.13
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	61.1
95% Approximate Gamma UCL (Use when n >= 40)	36.46		
95% Adjusted Gamma UCL (Use when n < 40)	38.33		
Potential UCL to Use		Use 95% Student's-t UCL	34.95

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Vanadium

General Statistics

Number of Valid Observations	49	Number of Distinct Observations	23
Number of Missing Values	45		

Raw Statistics		Log-transformed Statistics	
Minimum	11	Minimum of Log Data	2.398
Maximum	39.8	Maximum of Log Data	3.684
Mean	18.08	Mean of log Data	2.858
Geometric Mean	17.43	SD of log Data	0.264
Median	17		
SD	5.452		
Std. Error of Mean	0.779		
Coefficient of Variation	0.302		
Skewness	1.895		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.951
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	19.39	95% H-UCL	19.34
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.04
95% Adjusted-CLT UCL (Chen-1995)	19.59	97.5% Chebyshev (MVUE) UCL	22.34
95% Modified-t UCL (Johnson-1978)	19.42	99% Chebyshev (MVUE) UCL	24.9
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	12.94	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1.398		
MLE of Mean	18.08		
MLE of Standard Deviation	5.027		
nu star	1268		
Approximate Chi Square Value (.05)	1186	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0451	95% CLT UCL	19.36
Adjusted Chi Square Value	1184	95% Jackknife UCL	19.39
		95% Standard Bootstrap UCL	19.34
Anderson-Darling Test Statistic	0.896	95% Bootstrap-t UCL	19.7
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	19.86
Kolmogorov-Smirnov Test Statistic	0.136	95% Percentile Bootstrap UCL	19.41

PROUCL OUTPUT - LOW CONCENTRATIONS AREA SURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Kolmogorov-Smirnov 5% Critical Value	0.126	95% BCA Bootstrap UCL	19.58
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21.48
		97.5% Chebyshev(Mean, Sd) UCL	22.95
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25.83
95% Approximate Gamma UCL (Use when n >= 40)	19.33		
95% Adjusted Gamma UCL (Use when n < 40)	19.37		
Potential UCL to Use		Use 95% Student's-t UCL	19.39
		or 95% Modified-t UCL	19.42
		or 95% H-UCL	19.34

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

ProUCL Output – Subsurface Soil – Chemicals Omitted on the Basis of Background

PROUCL OUTPUT - SUBSURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	8
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum	3600	Minimum of Log Data	8.189
Maximum	7450	Maximum of Log Data	8.916
Mean	5817	Mean of log Data	8.633
Geometric Mean	5614	SD of log Data	0.289
Median	6700		
SD	1574		
Std. Error of Mean	524.8		
Coefficient of Variation	0.271		
Skewness	-0.298		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,

the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.829	Shapiro Wilk Test Statistic	0.832
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6793	95% H-UCL	7177
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8281
95% Adjusted-CLT UCL (Chen-1995)	6624	97.5% Chebyshev (MVUE) UCL	9343
95% Modified-t UCL (Johnson-1978)	6784	99% Chebyshev (MVUE) UCL	11431
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	9.563	Data appear Lognormal at 5% Significance Level	
Theta Star	608.3		
MLE of Mean	5817		
MLE of Standard Deviation	1881		
nu star	172.1		

Approximate Chi Square Value (.05)	142.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0231	95% CLT UCL	6680
Adjusted Chi Square Value	137.1	95% Jackknife UCL	6793
		95% Standard Bootstrap UCL	6616
Anderson-Darling Test Statistic	0.803	95% Bootstrap-t UCL	6753
Anderson-Darling 5% Critical Value	0.721	95% Hall's Bootstrap UCL	6474
Kolmogorov-Smirnov Test Statistic	0.292	95% Percentile Bootstrap UCL	6628
Kolmogorov-Smirnov 5% Critical Value	0.279	95% BCA Bootstrap UCL	6583
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8104
		97.5% Chebyshev(Mean, Sd) UCL	9094
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	11038
95% Approximate Gamma UCL (Use when n >= 40)	7012		
95% Adjusted Gamma UCL (Use when n < 40)	7300		
Potential UCL to Use		Use 95% Student's-t UCL	6793
		or 95% Modified-t UCL	6784
		or 95% H-UCL	7177

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits

(e.g., Chen, Johnson, Lognormal, and Gamma) may not be

reliable. Chen's and Johnson's methods provide

adjustments for positvely skewed data sets.

Manganese

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9
Number of Missing Values	1		

Raw Statistics		**Log-transformed Statistics**	
Minimum	65	Minimum of Log Data	4.174
Maximum	320	Maximum of Log Data	5.768
Mean	172.1	Mean of log Data	4.991
Geometric Mean	147.1	SD of log Data	0.605
Median	170		
SD	98.94		
Std. Error of Mean	32.98		
Coefficient of Variation	0.575		
Skewness	0.521		

PROUCL OUTPUT - SUBSURFACE SOIL - CHEMICALS OMITTED ON THE BASIS OF BACKGROUND

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.877	Shapiro Wilk Test Statistic	0.903
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	233.4	95% H-UCL	298.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	327.4
95% Adjusted-CLT UCL (Chen-1995)	232.5	97.5% Chebyshev (MVUE) UCL	394.4
95% Modified-t UCL (Johnson-1978)	234.4	99% Chebyshev (MVUE) UCL	525.9
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.297	Data appear Normal at 5% Significance Level	
Theta Star	74.92		
MLE of Mean	172.1		
MLE of Standard Deviation	113.6		
nu star	41.35		
Approximate Chi Square Value (.05)	27.61	Nonparametric Statistics	
Adjusted Level of Significance	0.0231	95% CLT UCL	226.4
Adjusted Chi Square Value	25.27	95% Jackknife UCL	233.4
		95% Standard Bootstrap UCL	223.2
Anderson-Darling Test Statistic	0.455	95% Bootstrap-t UCL	246.8
Anderson-Darling 5% Critical Value	0.726	95% Hall's Bootstrap UCL	228.2
Kolmogorov-Smirnov Test Statistic	0.245	95% Percentile Bootstrap UCL	224.7
Kolmogorov-Smirnov 5% Critical Value	0.281	95% BCA Bootstrap UCL	224.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	315.9
		97.5% Chebyshev(Mean, Sd) UCL	378.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	500.3
95% Approximate Gamma UCL (Use when n >= 40)	257.7		
95% Adjusted Gamma UCL (Use when n < 40)	281.7		
Potential UCL to Use		Use 95% Student's-t UCL	233.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX E

COMPARISON OF EPH AND VPH DATA IN SURFACE AND SUBSURFACE SOIL TO MCP CRITERIA

TABLE E.1
COMPARISON OF EPH AND VPH IN SURFACE SOIL TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	MCP S-1/GW-1[5]	Above Screening Level?
IOA	**VPH MADEP**											
	--	C5-C8 Aliphatics	5290	48000 J	UG/KG	B116-OSB5AA	4/15	270 - 12000	48000	NA	100000	No
	--	C5-C8 Aliphatics (Weighted 0.5)	24000 J	24000 J	UG/KG	B116-OSB5AA	1/5	2900 - 5900	24000	NA	100000	No
	--	C5-C8 Aliphatics-Unadj	6030	6030	UG/KG	SB09008-NSO-121698-0	1/3	2800 - 4400	6030	NA	100000	No
	--	C9-C10 Aromatics	1060	3400	UG/KG	B8-8SB4AA	2/15	540 - 5900	3400	NA	100000	No
	--	C9-C12 Aliphatics	480 J	32000 J	UG/KG	B116-OSB5AA	4/15	27 - 22000	32000	NA	1000000	No
	--	C9-C12 Aliphatics (Weighted 0.05)	1600 J	1600 J	UG/KG	B116-OSB5AA	1/5	83 - 1100	1600	NA	1000000	No
	95-47-6	o-Xylene	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	400000 [6]	No
	1330-20-7	Total Xylenes	0.67 J	2.8 J	UG/KG	SB07-305-NSO-1104020-D	1/23	0.8 - 3000	2.8	NA	400000 [6]	No
	--	Volatile Petroleum Hydrocarbons	7160	21400	UG/KG	B14SB08AA	2/2	-	21400	NA	NA	NTX
	EPH MADEP											
	--	C11-C22 Aromatics	22000 J	736000	UG/KG	SB09008-NSO-121698-0	11/33	85 - 92000	736000	NA	1000000	No
	--	C11-C22 Aromatics (Weighted 1.0)	160000 J	160000 J	UG/KG	B116-OSB1AA	1/5	14000 - 92000	160000	NA	1000000	No
	--	C11-C22 Aromatics-Unadj	737000	737000	UG/KG	SB09008-NSO-121698-0	1/4	85 - 18000	737000	NA	1000000	No
	--	C19-C36 Aliphatics	1250	410000 J	UG/KG	B116-OSB1AA	19/33	21 - 54000	410000	NA	3000000	No
	--	C19-C36 Aliphatics (Weighted 0.005)	140 J	2100 J	UG/KG	B116-OSB1AA	4/5	27 - 30	2100	NA	3000000	No
	--	C9-C18 Aliphatics	2500	190000 J	UG/KG	B116-OSB1AA	16/33	155 - 54000	190000	NA	1000000	No
	--	C9-C18 Aliphatics (Weighted 0.05)	3100 J	9300 J	UG/KG	B116-OSB1AA	2/5	250 - 980	9300	NA	1000000	No
	--	Extractable Petroleum Hydrocarbons	69000 J	340000 J	UG/KG	SB06002-NSO-120898-0	9/14	10000 - 34000	340000	NA	NA	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background values are the 95% UPL (or maximum detected) NAS South Weymouth surface soil background concentrations (Stone and Webster, 2002).
5 - Massachusetts Contingency Plan (MCP) Method 1: Soil Category S-1Standards. S-1Soil & GW-1 Groundwater. 310 CMR 40.0000, 12/14/2007.
6 - Values are for xylenes (mixed isomers).

Definitions:
EPH = Extractable petroleum hydrocarbons
J = Estimated value
MADEP = Massachusetts Department of Environmental Protection
NA = Not Applicable/Not Available
NTX = No toxicity criteria
VPH = Volatile petroleum hydrocarbons

TABLE E.1
COMPARISON OF EPH AND VPH IN SURFACE SOIL TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	MCP S-1/GW-1[5]	Above Screening Level?

Associated Samples:

IOA-SS-EU01-0002	IOA-SS-EU10-0002	IOA-SS-EU21-0002	IOA-SS-EU29-0002-D	IOA-SS-EU46-0002-D
IOA-SS-EU01-0002-D	SB11-201-NSO-0515010	SB09008-NSO-121698-0	IOA-SS-EU30-0002	IOA-SS-EU47-0002
IOA-SS-EU02-0002	IOA-SS-EU12-0002	IOA-SS-EU22-0002	IOA-SS-EU31-0002	IOA-SS-EU48-0002
IOA-SS-EU03-0002	IOA-SS-EU13-0002	SB09009-NSO-121698-0	IOA-SS-EU32-0002	IOA-SS-EU49-0002
IOA-SS-EU04-0002	IOA-SS-EU14-0002	IOA-SS-EU23-0002	IOA-SS-EU32-0002-D	
B116-OSB1AA	SB07-312-NSO-1104020	SB06-343-NSO-072503	IOA-SS-EU33-0002	
B116-OSB1AA-D	IOA-SS-EU15-0002	B8-8SB2AA	IOA-SS-EU34-0002	
B116-OSB2AA	IOA-SS-EU15-0002-D	B8-8SB3AA	IOA-SS-EU35-0002	
B116-OSB3AA	SB07-305-NSO-1104025	B8-8SB4AA	IOA-SS-EU36-0002	
B116-OSB4AA	SB07-305-NSO-1104020	SB06010-NSO-120998-0	IOA-SS-EU37-0002	
B116-OSB4AA-D	SB07-305-NSO-1104020-D	SB06011-NSO-120998-0	MW06013-NSO-112498-0	
B14SB09AA	SB07-306-NSO-1104025	SB06-304-NSO-0716030	SB06008-NSO-120898-0	
IOA-SS-EU06-0002	SB07-306-NSO-1104020	B8-8SB5AA	SB06008-NSO-120898-0-D	
IOA-SS-EU07-0002	SB07-311-NSO-1104020	B8-8SB6AA	SB06009-NSO-120898-0	
SB07-339-NSO-101503	SB07-326-NSO-0716031	IOA-SS-EU27-0002	SB06-351-NSO-072503	
SB07-307-NSO-1104025	SB07-326-NSO-0716032	S1SWE	IOA-SS-EU38-0002	
SB07-307-NSO-1104020	SB07-327-NSO-0716031	S1SWN	SB06006-NSO-120898-0	
SB07-308-NSO-1104025	SB07-327-NSO-0716032	S1SWW	SB06007-NSO-120898-0	
SB07-308-NSO-1104020	SB07-328-NSO-0716030	S2SWE	SB06012-NSO-120998-0	
SB07-309-NSO-1104025	SB07-328-NSO-0716031	S2SWE-D	IOA-SS-EU39-0002	
SB07-309-NSO-1104020	SB07-329-NSO-0716030	S2SWN	SB06004-NSO-120898-0	
SB07-310-NSO-0716030	SB07-329-NSO-0716031	S2SWW	SB06005-NSO-120898-0	
SB07-310-NSO-1104020	SB07-336-NSO-101503	NAS-AOC13-SW01	SS06-020-NSO-102798	
SB07-330-NSO-0716030	SB07-337-NSO-101503	NAS-AOC13-SW01-D	SS06-020-NSO-102798-D	
SB07-330-NSO-0716031	SB07-338-NSO-101503	NAS-AOC13-SW02	IOA-SS-EU40-0002	
SB07-331-NSO-0716030	IOA-SS-EU16-0002	NAS-AOC13-SW03	IOA-SS-EU41-0002	
SB07-331-NSO-0716031	IOA-SS-EU17-0002	NAS-AOC13-SW04	IOA-SS-EU42-0002	
SB07-340-NSO-101503	MW11131-NSO-122198-0	IOA-SS-EU28-0002	IOA-SS-EU43-0002	
IOA-SS-EU09-0002	SB11-205-NSO-0515010	SB06001-NSO-120898-0	IOA-SS-EU44-0002	
B116-OSB5AA	IOA-SS-EU19-0002	SB06002-NSO-120898-0	IOA-SS-EU45-0002	
B14SB08AA	SB09007-NSO-121698-0	IOA-SS-EU29-0002	IOA-SS-EU46-0002	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID		IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID		IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE		20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	1	1	1	1	1	1	1	1
BOTTOM DEPTH		2	2	2	2	2	2	3	3	3	3	3	3	3	3
VOLATILES (UG/KG)															
2-BUTANONE	4000														
ACETONE	6000														
BENZENE	2000							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
ETHYLBENZENE	40000							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
M+P-XYLENES	400000 [2]														
TOLUENE	30000							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
TOTAL XYLENES	400000 [2]							5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000							5900 U	8450 U	11000 U	6600 U	11000 U	12000 U	12000 U	12000 U
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000							2900 U	4250 U	5600 U	3300 U	5700 U	5900 U	5900 U	5900 U
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000							2900 U	4250 U	5600 U	3300 U	5800 U	5900 U	5900 U	5900 U
C9-C12 ALIPHATICS	1000000							14000 U	18000 U	22000 U	1700 U	2900 U	3000 U	3000 U	3000 U
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000							720 U	910 U	1100 U	83 U	140 U	150 U	150 U	150 U
O-XYLENE	400000 [2]							1500 U	2150 U	2800 U	1700 U	2900 U	3000 U	3000 U	3000 U
TOTAL XYLENES	400000 [2]							1500 U	2150 U	2800 U	1700 U	2900 U	3000 U	3000 U	3000 U
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
ACENAPHTHENE	4000	53 J	47.5 J	42 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
ACENAPHTHYLENE	1000	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
ANTHRACENE	1000000	140 J	112 J	83 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BAP EQUIVALENT-HALFND	2000	445 J	373 J	301 J	94 UJ	164 J	227 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BAP EQUIVALENT-POS	2000	445 J	373 J	301 J	94 UJ	5.3 J	122 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BENZO(A)ANTHRACENE	7000	340 J	290 J	240 J	94 UJ	53 J	110 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BENZO(A)PYRENE	2000	310 J	260 J	210 J	94 UJ	97 UJ	97 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BENZO(B)FLUORANTHENE	7000	400 J	340 J	280 J	94 UJ	97 UJ	130 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BENZO(G,H,I)PERYLENE	1000000	150 J	109 J	68 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BENZO(K)FLUORANTHENE	70000	180 J	145 J	110 J	94 UJ	97 UJ	100 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
BIS(2-ETHYLHEXYL)PHTHALATE	200000														
BUTYL BENZYL PHTHALATE	NC														
CARBAZOLE	NC														
CHRYSENE	70000	350 J	280 J	210 J	94 UJ	97 UJ	140 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
DIBENZO(A,H)ANTHRACENE	700	45 J	37 J	29 J	190 UJ	190 UJ	190 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
DIBENZOFURAN	NC														
DI-N-BUTYL PHTHALATE	NC														
FLUORANTHENE	1000000	760 J	620 J	480 J	94 UJ	76 J	250 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
FLUORENE	1000000	54 J	48 J	42 J	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
INDENO(1,2,3-CD)PYRENE	7000	140 J	112 J	85 J	190 UJ	190 UJ	190 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
NAPHTHALENE	4000	20 UJ	19.5 UJ	19 UJ	94 UJ	97 UJ	93 UJ	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
PHENANTHRENE	10000	510 J	410 J	310 J	94 UJ	97 UJ	120 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID		IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID		IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE		20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	1	1	1	1	1	1	1	1
BOTTOM DEPTH		2	2	2	2	2	2	3	3	3	3	3	3	3	3
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000														
PYRENE	1000000	630 J	505 J	380 J	94 UJ	64 J	210 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
TOTAL PAHS	NC	4060 J	3320 J	2570 J	105 UJ	193 J	1160 J	360 U	360 U	360 U	330 U	220 UJ	360 U	360 U	360 U
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000														
4,4'-DDE	3000														
4,4'-DDT	3000														
ALDRIN	40														
ALPHA-CHLORDANE	700 [3]														
AROCLOR-1260	2000 [4]	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J								
DIELDRIN	50														
ENDOSULFAN II	500 [5]														
ENDOSULFAN SULFATE	500 [5]														
ENDRIN	8000														
ENDRIN ALDEHYDE	8000 [6]														
ENDRIN KETONE	8000 [6]														
GAMMA-CHLORDANE	700 [3]														
HEPTACHLOR	200														
HEPTACHLOR EPOXIDE	90														
METHOXYCHLOR	200000														
TOTAL AROCLOR	2000 [4]	27 J	17 J	7 J	7.3 U	9.5 J	7.3 J								
METALS (MG/KG)															
ALUMINUM	NC	4400	4600	4800	5400	6600	4400								
ANTIMONY	20	0.15 U	0.13 U	0.11 U	0.084 U	0.13 U	0.1 U								
ARSENIC	20	1.5	1.6	1.7	1	1.1	1.7	2	1.8	1.6			0.98	1.29	1.6
BARIUM	1000	17	17.5	18	17	16	14	12.5	13.6	14.8			22.4	22	21.5
BERYLLIUM	100	0.44	0.312	0.37 U	0.3 U	0.25 U	0.3 U								
CADMIUM	2	0.28 U	0.24 U	0.2 U	0.15 U	0.2 U	0.17 U	0.05 U	0.0275	0.03			0.04 U	0.055 U	0.07 U
CALCIUM	NC	1500 J	1500 J	1500 J	1100 J	940 J	1000 J								
CHROMIUM	30 [7]	5.5	5.6	5.7	5.9	15	7.4	7.8	6.45	5.1			7.2	7.95	8.7
COBALT	NC	3.2	3.15	3.1	2.8	3.5	2.9								
COPPER	NC	7.7	7.75	7.8	4.8	5.8	5.2								
IRON	NC	9800	10400	11000	9600	12000	11000								
LEAD	300	16 J	15 J	14 J	6 J	9 J	5.3 J	7.3	7.5	7.7	6.3	10.6	4.6	4.9	5.2
MAGNESIUM	NC	1600 J	1650 J	1700 J	1700 J	2000 J	1400 J								
MANGANESE	NC	310 J	290 J	270 J	140 J	180 J	160 J								
MERCURY	20	0.02 J	0.016 J	0.012 J	0.0052 J	0.009 J	0.0019 J	0.02 U	0.02 U	0.02 U			0.02 U	0.02 U	0.02 U
NICKEL	20	4.7	4.7	4.7	4.3	14	5.2								
POTASSIUM	NC	330	345	360	500	280	370								
SELENIUM	400	0.87	0.745 J	0.62 J	0.67 J	0.72	0.65 J	0.19 U	0.185 U	0.18 U			0.2 U	0.225 U	0.25 U
SILVER	100	0.084 U	0.0795 U	0.075 U	0.069 U	0.069 U	0.068 U	0.07 U	0.065 U	0.06 U			0.07 U	0.07 U	0.07 U

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID		IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID		IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE		20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	1	1	1	1	1	1	1	1
BOTTOM DEPTH		2	2	2	2	2	2	3	3	3	3	3	3	3	3
SODIUM	NC	50 J	51 J	52 J	51 J	39 J	52 J								
METALS CONTINUED (MG/KG)															
THALLIUM	8	0.39	0.222	0.11 U	0.077 U	0.14 U	0.076 U								
VANADIUM	600	12	12	12	13	13	14								
ZINC	2500	29	29	29	21	25	22								
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100														
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000							160000 J	92800 J	51000 UJ	33000 U	39000 U	14000 U	21500 U	29000 U
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000							160000 J	92800 J	51000 UJ	33000 U	39000 U	14000 U	21500 U	29000 U
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000							410000 J	325000 J	240000 J	28000 J	110000	6000 U	5750 UJ	5500 UJ
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000							2100 J	1650 J	1200 J	140 J	550	30 U	28.5 UJ	27 UJ
C9-C18 ALIPHATICS	1000000							190000 J	126000 J	62000 J	20000 U	12000 U	5000 U	6900 UJ	8800 UJ
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000							9300 J	6200 J	3100 J	980 U	580 U	250 U	345 UJ	440 UJ
EXTRACTABLE PETROLEUM HYDROCARBONS	NC														
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC														
1,2,3,4,6,7,8,9-OCDF	NC														
1,2,3,4,6,7,8-HPCDD	NC														
1,2,3,4,6,7,8-HPCDF	NC														
1,2,3,4,7,8,9-HPCDF	NC														
1,2,3,4,7,8-HXCDD	NC														
1,2,3,4,7,8-HXCDF	NC														
1,2,3,6,7,8-HXCDD	NC														
1,2,3,6,7,8-HXCDF	NC														
1,2,3,7,8,9-HXCDD	NC														
1,2,3,7,8,9-HXCDF	NC														
1,2,3,7,8-PECDD	NC														
1,2,3,7,8-PECDF	NC														
2,3,4,6,7,8-HXCDF	NC														
2,3,4,7,8-PECDF	NC														
2,3,7,8-TCDD	20														
2,3,7,8-TCDF	NC														
TEQ	20														
TEQ HALFND	20														
TOTAL HPCDD	NC														
TOTAL HPCDF	NC														
TOTAL HXCDD	NC														
TOTAL HXCDF	NC														
TOTAL PECDD	NC														
TOTAL PECDF	NC														

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU01	EU01	EU01	EU02	EU03	EU04	EU05	EU05	EU05	EU05	EU05	EU05	EU05	EU05
LOCATION ID		IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU01	IOA-SS-EU02	IOA-SS-EU03	IOA-SS-EU04	B116-MW-01	B116-MW-01	B116-MW-01	B116-MW-02	B116-MW-03	B116-MW-04	B116-MW-04	B116-MW-04
SAMPLE ID		IOA-SS-EU01-0002	IOA-SS-EU01-0002-AVG	IOA-SS-EU01-0002-D	IOA-SS-EU02-0002	IOA-SS-EU03-0002	IOA-SS-EU04-0002	B116-OSB1AA	B116-OSB1AA-AVG	B116-OSB1AA-D	B116-OSB2AA	B116-OSB3AA	B116-OSB4AA	B116-OSB4AA-AVG	B116-OSB4AA-D
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE DATE		20110809	20110809	20110809	20110809	20110809	20110809	19970312	19970312	19970312	19970312	19970313	19970313	19970313	19970313
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	1	1	1	1	1	1	1	1
BOTTOM DEPTH		2	2	2	2	2	2	3	3	3	3	3	3	3	3
TOTAL TCDD	NC														
TOTAL TCDF	NC														

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID		B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330
SAMPLE ID		B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5	0	1
BOTTOM DEPTH		2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1	1	2
VOLATILES (UG/KG)															
2-BUTANONE	4000	17.1 J					21 R		7.4 J		23 R				
ACETONE	6000	78.6 J					29 J		87		48				
BENZENE	2000	0.88 U					4.2 U		5.2 U		4.6 U				
ETHYLBENZENE	40000	0.88 UJ					4.2 U		5.2 U		4.6 U				
M+P-XYLENES	400000 [2]	1000 U					4.2 U		5.2 U		4.6 U				
TOLUENE	30000	0.88 U					4.2 U		5.2 U		4.6 U				
TOTAL XYLENES	400000 [2]	1 J					4.2 U		5.2 U		4.6 U				
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000	5290													
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000	1000 U													
C9-C12 ALIPHATICS	1000000	1870													
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]	520 U					4.2 U		5.2 U		4.6 U				
TOTAL XYLENES	400000 [2]	520 U					4.2 U		5.2 U		4.6 U				
VOLATILE PETROLEUM HYDROCARBONS	NC	7160													
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700	190 U	19 UJ	94 UJ			260 U		260 U		270 U				
ACENAPHTHENE	4000	190 U	34 J	94 UJ			260 U		260 U		270 U				
ACENAPHTHYLENE	1000	190 U	94 J	94 UJ			260 U		260 U		270 U				
ANTHRACENE	1000000	190 U	86 J	94 UJ			260 U		260 U		74 J				
BAP EQUIVALENT-HALFND	2000	190 U	501 J	161 J			96.7 J		52.3 J		621 J				
BAP EQUIVALENT-POS	2000	190 U	501 J	4.1 J			69.3 J		51 J		621 J				
BENZO(A)ANTHRACENE	7000	190 U	380 J	41 J			260 U		29 J		310				
BENZO(A)PYRENE	2000	190 U	360 J	94 UJ			56		30 J		400				
BENZO(B)FLUORANTHENE	7000	190 U	430 J	94 UJ			38 J		59 J		610				
BENZO(G,H,I)PERYLENE	1000000	190 U	120 J	94 UJ			260 U		260 U		280				
BENZO(K)FLUORANTHENE	70000	190 U	130 J	94 UJ			260 U		260 U		230 J				
BIS(2-ETHYLHEXYL)PHTHALATE	200000	190 U					260 U		260 U		270 U				
BUTYL BENZYL PHTHALATE	NC	190 U					260 U		260 U		270 U				
CARBAZOLE	NC	190 U					260 U		260 U		79 J				
CHRYSENE	70000	190 U	370 J	94 UJ			260 U		39 J		420				
DIBENZO(A,H)ANTHRACENE	700	190 U	47 J	190 UJ			9.5 J		7.3 J		95				
DIBENZOFURAN	NC	190 U					260 U		260 U		270 U				
DI-N-BUTYL PHTHALATE	NC	190 U					260 U		260 U		270 U				
FLUORANTHENE	1000000	17.7 J	430 J	94 UJ			49 J		65 J		810				
FLUORENE	1000000	190 U	30 J	94 UJ			260 U		260 U		270 U				
INDENO(1,2,3-CD)PYRENE	7000	190 U	110 J	190 UJ			260 U		49 J		310				
NAPHTHALENE	4000	190 U	11 J	94 UJ			260 U		260 U		270 U				
PHENANTHRENE	10000	190 U	200 J	94 UJ			260 U		260 U		440				

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID		B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330
SAMPLE ID		B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5	0	1
BOTTOM DEPTH		2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1	1	2
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000	190 U					260 U		260 U		270 U				
PYRENE	1000000	25 J	480 J	94 UJ			36 J		57 J		640				
TOTAL PAHS	NC	42.7 J	3310 J	41 J			188 J		335 J		4620 J				
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000						1.7 U		1.7 U		1.7 U				
4,4'-DDE	3000						1.7 U		2.1		1.7 U				
4,4'-DDT	3000						1.7 U		18		31 J				
ALDRIN	40						0.83 U		0.85 U		0.84 U				
ALPHA-CHLORDANE	700 [3]						0.83 U		8.4 J		0.84 U				
AROCLOR-1260	2000 [4]	18 U	150		290	96 J	20 J	1800	160	250	220		170	11 J	31
DIELDRIN	50						1.7 U		1.7 U		1.7 U				
ENDOSULFAN II	500 [5]						1.7 U		1.7 U		1.7 U				
ENDOSULFAN SULFATE	500 [5]						1.7 U		1.7 U		1.7 U				
ENDRIN	8000						1.7 U		1.7 U		1.7 U				
ENDRIN ALDEHYDE	8000 [6]						1.7 U		1.7 U		1.7 U				
ENDRIN KETONE	8000 [6]						1.7 U		1.7 U		1.7 U				
GAMMA-CHLORDANE	700 [3]						0.83 U		6.1		0.84 U				
HEPTACHLOR	200						0.83 U		0.91 J		0.84 U				
HEPTACHLOR EPOXIDE	90						0.83 U		0.85 U		0.84 U				
METHOXYCHLOR	200000						8.3 U		8.5 U		8.4 U				
TOTAL AROCLOR	2000 [4]	18 U	150		290	96 J	20 J	1800	160	250	220		170	11 J	31
METALS (MG/KG)															
ALUMINUM	NC	7890	5500	7400			2800 J		7500 J		8100 J				
ANTIMONY	20	6.4 U	0.23 U	0.13 U			0.46 J		1.3		0.92				
ARSENIC	20	2	0.89	2.4			5.2		3.4		2.9	4.5			
BARIUM	1000	25.1	19	19			15 U		17 U		18 U	8.7 J			
BERYLLIUM	100	0.54 U	0.36	0.36			0.33 U		0.31 U		0.38 U				
CADMIUM	2	0.54 U	0.25 U	0.37			0.19 J		0.4 J		0.56 J	0.62 U			
CALCIUM	NC	1620 J	1600 J	1100 J			320		1200		1100				
CHROMIUM	30 [7]	8.5	6.9	9.5			5.8		12		11	5.5			
COBALT	NC	5.4 U	2.7	5.5			1.9 U		7.4		6.3 J				
COPPER	NC	3.7 J	5	11			3.2		15		12				
IRON	NC	9740	11000	17000			10000		15000		15000				
LEAD	300	12	16 J	11 J			6.8		40		25	6			
MAGNESIUM	NC	1100	1600 J	2900 J			540		3500		3000				
MANGANESE	NC	113	170 J	330 J			68		350		370				
MERCURY	20	0.038 UJ	0.0073 J	0.006 J			0.0041 J		0.0061 J		0.024 J	0.05 U			
NICKEL	20	4.3 U	4.2	9.1			3.6 J		13		12				
POTASSIUM	NC	540 U	290	400			660 J		460 J		520 J				
SELENIUM	400	11 U	0.62 J	0.58 J			0.62 U		0.48 J		0.65 UJ	0.62 UJ			
SILVER	100	1.1 U	0.1 U	0.061 U			0.12 UJ		0.13 UJ		0.13 UJ	0.12 UJ			

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS
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OU		EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID		B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330
SAMPLE ID		B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5	0	1
BOTTOM DEPTH		2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1	1	2
SODIUM	NC	540 U	59 J	40 J			58 U		87 U		89 U				
METALS CONTINUED (MG/KG)															
THALLIUM	8	1.5 U	0.068 U	0.077 U			0.62 UJ		0.67 UJ		0.65 UJ				
VANADIUM	600	18.2	13	18			19		20		24				
ZINC	2500	22.7	27	44			13		43		97				
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100						0.92 U		1.1 U		0.94 U				
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000	10000 UJ					51000 U		53000 U		54000 U				
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000	10000 U					51000 U		13000 J		54000 U				
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000	10000 U					51000 U		53000 U		54000 U				
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC	10000 U													
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC			415											
1,2,3,4,6,7,8,9-OCDF	NC			13.9											
1,2,3,4,6,7,8-HPCDD	NC			15.9											
1,2,3,4,6,7,8-HPCDF	NC			8.14											
1,2,3,4,7,8,9-HPCDF	NC			0.883 U											
1,2,3,4,7,8-HXCDD	NC			0.314 J											
1,2,3,4,7,8-HXCDF	NC			0.51 J											
1,2,3,6,7,8-HXCDD	NC			0.598 J											
1,2,3,6,7,8-HXCDF	NC			0.519 J											
1,2,3,7,8,9-HXCDD	NC			0.36 J											
1,2,3,7,8,9-HXCDF	NC			0.883 U											
1,2,3,7,8-PECDD	NC			0.221 U											
1,2,3,7,8-PECDF	NC			1.49 J											
2,3,4,6,7,8-HXCDF	NC			0.998 J											
2,3,4,7,8-PECDF	NC			1.02 J											
2,3,7,8-TCDD	20			0.177 U											
2,3,7,8-TCDF	NC			0.371 U											
TEQ	20			1.05 J											
TEQ HALFND	20			1.32 J											
TOTAL HPCDD	NC			35.5											
TOTAL HPCDF	NC			19.9											
TOTAL HXCDD	NC			5.16 J											
TOTAL HXCDF	NC			12.2 J											
TOTAL PECDD	NC			0.569 J											
TOTAL PECDF	NC			12.3 J											

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU05	EU06	EU07	EU07	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08	EU08
LOCATION ID		B14-SB-09	IOA-SS-EU06	IOA-SS-EU07	SB07-339	SB07-307	SB07-307	SB07-308	SB07-308	SB07-309	SB07-309	SB07-310	SB07-310	SB07-330	SB07-330
SAMPLE ID		B14SB09AA	IOA-SS-EU06-0002	IOA-SS-EU07-0002	SB07-339-NSO-101503	SB07-307-NSO-1104025	SB07-307-NSO-1104020	SB07-308-NSO-1104025	SB07-308-NSO-1104020	SB07-309-NSO-1104025	SB07-309-NSO-1104020	SB07-310-NSO-0716030	SB07-310-NSO-1104020	SB07-330-NSO-0716030	SB07-330-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19990614	20110809	20110809	20031015	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20021104	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		1	0	0	0.5	0	0.5	0	0.5	0	0.5	0.5	0.5	0	1
BOTTOM DEPTH		2	2	2	1.5	0.5	1	0.5	1	0.5	1	1	1	1	2
TOTAL TCDD	NC			0.36 J											
TOTAL TCDF	NC			2.67 J											

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14	EU14	EU15	EU15
LOCATION ID		SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15
SAMPLE ID		SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE		20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809	20021104	20110809	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	0.5	0	1	1	0	0	0	0	0	0.5	0	0
BOTTOM DEPTH		1	2	1.5	2	3	2	2	1	2	2	2	1	2	2
VOLATILES (UG/KG)															
2-BUTANONE	4000								2 U						
ACETONE	6000								51 UJ						
BENZENE	2000					5.5 U	260 U		0.6 U						
ETHYLBENZENE	40000					0.8 J	260 U		0.5 U						
M+P-XYLENES	400000 [2]						1000 U		1 U						
TOLUENE	30000					4 J	790 U		0.7 U						
TOTAL XYLENES	400000 [2]					3 J	1000 U		1 U						
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000					48000 J	17100								
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000					24000 J									
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000					5600 U	1060								
C9-C12 ALIPHATICS	1000000					32000 J	3200								
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000					1600 J									
O-XYLENE	400000 [2]					2800 U	520 U		0.8 U						
TOTAL XYLENES	400000 [2]					2800 U	520 U		0.8 U						
VOLATILE PETROLEUM HYDROCARBONS	NC						21400								
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700				11 J	360 U	410 U		24 U	90 UJ	20 UJ				
ACENAPHTHENE	4000				58 J	360 U	410 U		44 U	90 UJ	16 J				
ACENAPHTHYLENE	1000				19 UJ	360 U	410 U		37 U	90 UJ	20 J				
ANTHRACENE	1000000				91 J	360 U	410 U		24 U	90 UJ	47 J				
BAP EQUIVALENT-HALFND	2000				346 J	360 U	410 U		79.9 J	185 J	257 J		391		
BAP EQUIVALENT-POS	2000				346 J	360 U	410 U		79.9 J	86 J	257 J		391		
BENZO(A)ANTHRACENE	7000				270 J	360 U	410 U		52 J	99 J	200 J				
BENZO(A)PYRENE	2000				240 J	360 U	410 U		37 J	66 J	170 J		330		
BENZO(B)FLUORANTHENE	7000				340 J	360 U	410 U		89 J	100 J	240 J				
BENZO(G,H,I)PERYLENE	1000000				95 J	360 U	410 U		49 J	90 UJ	100 J				
BENZO(K)FLUORANTHENE	70000				110 J	360 U	410 U		96 J	53 UJ	110 J				
BIS(2-ETHYLHEXYL)PHTHALATE	200000								89 J						
BUTYL BENZYL PHTHALATE	NC								39 U						
CARBAZOLE	NC								30 U						
CHRYSENE	70000				280 J	360 U	410 U		94 J	91 J	200 J				
DIBENZO(A,H)ANTHRACENE	700				35 J	360 U	410 U		23 J	180 UJ	32 J		61		
DIBENZOFURAN	NC								36 U						
DI-N-BUTYL PHTHALATE	NC								36 J						
FLUORANTHENE	1000000				580 J	360 U	410 U		130 J	150 J	370 J				
FLUORENE	1000000				52 J	360 U	410 U		44 U	90 UJ	19 J				
INDENO(1,2,3-CD)PYRENE	7000				87 J	360 U	410 U		47 J	180 UJ	100 J				
NAPHTHALENE	4000				16 J	360 U	410 U		29 U	90 UJ	20 UJ				
PHENANTHRENE	10000				400 J	360 U	410 U		85 J	63 J	190 J				

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14	EU14	EU15	EU15
LOCATION ID		SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15
SAMPLE ID		SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG
MATRIX	**MCP S-1/GW-1 Standards**[1]	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE		20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809	20021104	20110809	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	0.5	0	1	1	0	0	0	0	0	0.5	0	0
BOTTOM DEPTH		1	2	1.5	2	3	2	2	1	2	2	2	1	2	2
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000								70 U						
PYRENE	1000000				480 J	360 U	410 U		140 J	170 J	300 J				
TOTAL PAHS	NC				3140 J	360 U	410 U		842 J	739 J	2110 J		391		
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000								3.4 U						
4,4'-DDE	3000								8.6 J						
4,4'-DDT	3000								20 J						
ALDRIN	40								1.7 U						
ALPHA-CHLORDANE	700 [3]								9.3						
AROCLOR-1260	2000 [4]	18 J	26 U	4.1 J	470			**12000**	440 J	7.2 U	18 J		170		
DIELDRIN	50								3.4 U						
ENDOSULFAN II	500 [5]								3.4 U						
ENDOSULFAN SULFATE	500 [5]								3.4 U						
ENDRIN	8000								3.4 U						
ENDRIN ALDEHYDE	8000 [6]								29 J						
ENDRIN KETONE	8000 [6]								3.4 U						
GAMMA-CHLORDANE	700 [3]								7.9						
HEPTACHLOR	200								1.7 U						
HEPTACHLOR EPOXIDE	90								4 J						
METHOXYCHLOR	200000								17 U						
TOTAL AROCLOR	2000 [4]	18 J	26 U	4.1 J	470			**12000**	440 J	7.2 U	18 J		170		
METALS (MG/KG)															
ALUMINUM	NC				5600				6900 J	7600	6600	4900			
ANTIMONY	20				0.24				4.8 UJ	0.089 U	0.19 U	0.14 U			
ARSENIC	20				1.4				3.4	1.2	1.3	1.9			
BARIUM	1000				22				23	15	21	16			
BERYLLIUM	100				0.3 U				0.36	0.35 J	0.22 U	0.38			
CADMIUM	2				0.3 U				0.48 U	0.19 J	0.25 U	0.18 U			
CALCIUM	NC				1100 J				1100 J	1400	810 J	1100 J			
CHROMIUM	30 [7]				8.1				11	9.2	8.6	6.3			
COBALT	NC				2.8				6	3.9	1.4	2.5			
COPPER	NC				9.7				6.6	7.1	6.2	4.4			
IRON	NC				11000				10000 J	13000	6100	11000			
LEAD	300				36 J	9			23	11	27 J	13 J			
MAGNESIUM	NC				1600 J				1600	1900	900 J	1300 J			
MANGANESE	NC				180 J				210	220 J	75 J	150 J			
MERCURY	20				0.02 J				0.01	0.017 J	0.038	0.0023 J			
NICKEL	20				4.6				5.7	7.2	5.3	4.2			
POTASSIUM	NC				240				430	340 J	260	320			
SELENIUM	400				0.65 J				0.96 U	0.76 U	0.88	0.7 J			
SILVER	100				0.063 U				0.48 U	0.082 U	0.11 J	0.089 U			

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14	EU14	EU15	EU15
LOCATION ID		SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15
SAMPLE ID		SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE		20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809	20021104	20110809	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	0.5	0	1	1	0	0	0	0	0	0.5	0	0
BOTTOM DEPTH		1	2	1.5	2	3	2	2	1	2	2	2	1	2	2
SODIUM	NC				51 J				96 U	43 J	41 J	60 J			
METALS CONTINUED (MG/KG)															
THALLIUM	8				0.37				0.96 U	0.1 U	0.069 U	0.078 U			
VANADIUM	600				15				19	15	18	18			
ZINC	2500				37				31	33	25	23			
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100								0.26 U						
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000					92000 UJ	10000 U								
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000					92000 UJ									
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000					400000 J	10000 U								
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000					2000 J									
C9-C18 ALIPHATICS	1000000					120000 J	10000 U								
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000					5800 J									
EXTRACTABLE PETROLEUM HYDROCARBONS	NC						10000 U								
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC				222						462			470	384
1,2,3,4,6,7,8,9-OCDF	NC				20.5						30.4			38.5 J	30.2 J
1,2,3,4,6,7,8-HPCDD	NC				20.5						60.2			40.3	33.6
1,2,3,4,6,7,8-HPCDF	NC				15.6						27.1			16	12.9
1,2,3,4,7,8,9-HPCDF	NC				2.05 J						1.31 J			1.4 J	1.12 J
1,2,3,4,7,8-HXCDD	NC				0.384 J						0.957 J			0.379 J	0.374 J
1,2,3,4,7,8-HXCDF	NC				5.13						2.22 J			1.8 J	1.42 J
1,2,3,6,7,8-HXCDD	NC				1.33 J						3.03			1.86 J	1.47 J
1,2,3,6,7,8-HXCDF	NC				7.61						2.61 J			1.76 J	1.4 J
1,2,3,7,8,9-HXCDD	NC				0.918 J						1.62 J			1.14 J	0.934 J
1,2,3,7,8,9-HXCDF	NC				2.02 J						0.811 J			0.974 U	1.02 U
1,2,3,7,8-PECDD	NC				1.7 J						0.642 J			0.587 J	0.954 J
1,2,3,7,8-PECDF	NC				1.01 J						0.739 J			0.427 J	0.338 J
2,3,4,6,7,8-HXCDF	NC				17.5						5.19			3.27	2.82 J
2,3,4,7,8-PECDF	NC				24.3						6.5			4.63	3.8
2,3,7,8-TCDD	20				0.366 J						0.623			0.222 U	0.218 U
2,3,7,8-TCDF	NC				1.11 J						0.87			0.445 U	0.382 U
TEQ	20				13.4 J						6 J			3.74 J	3.55 J
TEQ HALFND	20				13.4 J						6 J			3.92 J	3.72 J
TOTAL HPCDD	NC				45.8						124			96.4	79
TOTAL HPCDF	NC				39.3						59.8			45.6	36.4
TOTAL HXCDD	NC				12.8						21.3 J			12.9 J	10.6 J
TOTAL HXCDF	NC				169 J						57.4 J			38	31.6 J
TOTAL PECDD	NC				10.1 J						6.54 J			3.63 J	3.5 J
TOTAL PECDF	NC				225						56.9			41.1 J	34.2 J

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU08	EU08	EU08	EU09	EU10	EU10	EU10	EU11	EU12	EU13	EU14	EU14	EU15	EU15
LOCATION ID		SB07-331	SB07-331	SB07-340	IOA-SS-EU09	B116-MW-05	B14-SB-08	IOA-SS-EU10	SB11-201	IOA-SS-EU12	IOA-SS-EU13	IOA-SS-EU14	SB07-312	IOA-SS-EU15	IOA-SS-EU15
SAMPLE ID		SB07-331-NSO-0716030	SB07-331-NSO-0716031	SB07-340-NSO-101503	IOA-SS-EU09-0002	B116-OSB5AA	B14SB08AA	IOA-SS-EU10-0002	SB11-201-NSO-0515010	IOA-SS-EU12-0002	IOA-SS-EU13-0002	IOA-SS-EU14-0002	SB07-312-NSO-1104020	IOA-SS-EU15-0002	IOA-SS-EU15-0002-AVG
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG
SAMPLE DATE		20030716	20030716	20031015	20110809	19970313	19990614	20110810	20010515	20110811	20110809	20110809	20021104	20110809	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	0.5	0	1	1	0	0	0	0	0	0.5	0	0
BOTTOM DEPTH		1	2	1.5	2	3	2	2	1	2	2	2	1	2	2
TOTAL TCDD	NC				2.63 J						4.51 J			2.59 J	1.73 J
TOTAL TCDF	NC				52.8						19.6 J			13.2 J	11.5 J

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID		IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326	SB07-327	SB07-327	SB07-328	SB07-328
SAMPLE ID		IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716	20030716	20030716	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5	1	1.5	0	1
BOTTOM DEPTH		2	0.5	1	1	1	0.5	1	1	1.5	2	1.5	2	1	2
VOLATILES (UG/KG)															
2-BUTANONE	4000			12 J	17.5 J	23 J		24 R							
ACETONE	6000			50 J	80 J	110 J		25 J							
BENZENE	2000			4.5 U	2.22 J	2.2 J		4.7 U							
ETHYLBENZENE	40000			4.5 U	4.4 U	4.3 U		4.7 U							
M+P-XYLENES	400000 [2]			1.3 J	3.8 J	6.3		4.7 U							
TOLUENE	30000			1.1 J	3.8 J	6.5		4.7 U							
TOTAL XYLENES	400000 [2]			1.3 J	3.8 J	6.3		4.7 U							
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000														
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000														
C9-C12 ALIPHATICS	1000000														
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]			0.67 J	1.74 J	2.8 J		4.7 U							
TOTAL XYLENES	400000 [2]			0.67 J	1.74 J	2.8 J		4.7 U							
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700			220 J	165 J	110 J		260 U							
ACENAPHTHENE	4000			260 U	260 U	260 U		260 U							
ACENAPHTHYLENE	1000			260 U	260 U	260 U		260 U							
ANTHRACENE	1000000			260 U	260 U	260 U		260 U							
BAP EQUIVALENT-HALFND	2000			136 J	114 J	92.8 J		83.6 J	124						
BAP EQUIVALENT-POS	2000			136 J	114 J	92.8 J		73.1 J	124						
BENZO(A)ANTHRACENE	7000			77 J	78 J	79 J		59 J							
BENZO(A)PYRENE	2000			66 J	63.5 J	61 J		56 J	100						
BENZO(B)FLUORANTHENE	7000			130 J	120 J	110 J		70 J							
BENZO(G,H,I)PERYLENE	1000000			90 J	68.5 J	47 J		260 U							
BENZO(K)FLUORANTHENE	70000			65 J	56.5 J	48 J		34 J							
BIS(2-ETHYLHEXYL)PHTHALATE	200000			260 U	265 U	270 U		260 U							
BUTYL BENZYL PHTHALATE	NC			260 U	265 U	270 U		260 U							
CARBAZOLE	NC			260 U	265 U	270 U		260 U							
CHRYSENE	70000			86 J	77 J	68 J		58 J							
DIBENZO(A,H)ANTHRACENE	700			40 J	23.3 J	6.6 J		21 U	24						
DIBENZOFURAN	NC			260 U	265 U	270 U		260 U							
DI-N-BUTYL PHTHALATE	NC			260 U	265 U	270 U		260 U							
FLUORANTHENE	1000000			150 J	150 J	150 J		130 J							
FLUORENE	1000000			260 U	260 U	260 U		260 U							
INDENO(1,2,3-CD)PYRENE	7000			87 J	72.5 J	58 J		38 J							
NAPHTHALENE	4000			140 J	130 J	120 EB		260 U							
PHENANTHRENE	10000			62 J	53 J	44 J		85 J							

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID		IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326	SB07-327	SB07-327	SB07-328	SB07-328
SAMPLE ID		IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716	20030716	20030716	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5	1	1.5	0	1
BOTTOM DEPTH		2	0.5	1	1	1	0.5	1	1	1.5	2	1.5	2	1	2
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000			260 U	265 U	270 U		260 U							
PYRENE	1000000			160 J	155 J	150 J		100 J							
TOTAL PAHS	NC			1370 J	1210 J	1050 J		630 J	124						
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000			1.7 U	1.7 U			1.6 U							
4,4'-DDE	3000			1.7 U	1.7 U			1.6 U							
4,4'-DDT	3000			1.7 U	1.7 U			1.6 U							
ALDRIN	40			0.85 U	0.85 U			0.82 U							
ALPHA-CHLORDANE	700 [3]			64 J	64 J			0.82 U							
AROCLOR-1260	2000 [4]		17 J	230	215	200	170	49	1000 J	1500	12 J	**2900**	14 J	72	500
DIELDRIN	50			1.7 U	1.7 U			1.6 U							
ENDOSULFAN II	500 [5]			1.7 U	1.7 U			1.6 U							
ENDOSULFAN SULFATE	500 [5]			1.7 U	1.7 U			1.6 U							
ENDRIN	8000			1.7 U	1.7 U			1.6 U							
ENDRIN ALDEHYDE	8000 [6]			1.7 U	1.7 U			1.6 U							
ENDRIN KETONE	8000 [6]			1.7 U	1.7 U			1.6 U							
GAMMA-CHLORDANE	700 [3]			52 J	52 J			0.82 U							
HEPTACHLOR	200			0.85 U	0.85 U			0.82 U							
HEPTACHLOR EPOXIDE	90			0.85 U	0.85 U			0.82 U							
METHOXYCHLOR	200000			8.5 U	8.5 U			8.2 U							
TOTAL AROCLOR	2000 [4]		17 J	230	215	200	170	49	1000 J	1500	12 J	**2900**	14 J	72	500
METALS (MG/KG)															
ALUMINUM	NC			4900 J	4450 J	4000 J		2600 J							
ANTIMONY	20			0.92	0.775 J	0.63 J		0.33 J							
ARSENIC	20			3.7	4.6	5.5		5.2							
BARIUM	1000			23 J	15.8 J	17 U		11 U							
BERYLLIUM	100			0.35 U	0.355 U	0.36 U		0.29 U							
CADMIUM	2			0.35 J	0.32 J	0.29 J		0.19 J							
CALCIUM	NC			600	515	430		140 U							
CHROMIUM	30 [7]			9.6	8.85	8.1		6							
COBALT	NC			2.8 J	2 J	2.4 U		1.7 U							
COPPER	NC			8	8.35	8.7		2.4 U							
IRON	NC			9600	10300	11000		8800							
LEAD	300			45	36	27		6.4							
MAGNESIUM	NC			1100	1010	920		530							
MANGANESE	NC			100	97	94		60							
MERCURY	20			0.017 J	0.014 J	0.011 J		0.0066 J							
NICKEL	20			5.2	5.35	5.5		3.9 J							
POTASSIUM	NC			540 J	490 J	440 J		450 J							
SELENIUM	400			0.62 U	0.645 U	0.67 U		0.62 J							
SILVER	100			0.12 UJ	0.125 UJ	0.13 UJ		0.13 UJ							

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID		IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326	SB07-327	SB07-327	SB07-328	SB07-328
SAMPLE ID		IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716	20030716	20030716	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5	1	1.5	0	1
BOTTOM DEPTH		2	0.5	1	1	1	0.5	1	1	1.5	2	1.5	2	1	2
SODIUM	NC			69 U	64 U	59 U		51 U							
METALS CONTINUED (MG/KG)															
THALLIUM	8			0.62 UJ	0.645 UJ	0.67 UJ		0.21 J							
VANADIUM	600			18	19	20		17							
ZINC	2500			32	29	26		18							
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100			0.93 U	0.94 U	0.95 U		1 U							
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000			52000 U	52000 U	52000 U		52000 U							
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000			12000 J	11500 J	11000 J		52000 U							
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000			19000 J	22500 J	26000 J		52000 U							
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC														
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC	299													
1,2,3,4,6,7,8,9-OCDF	NC	21.9 J													
1,2,3,4,6,7,8-HPCDD	NC	26.8													
1,2,3,4,6,7,8-HPCDF	NC	9.85													
1,2,3,4,7,8,9-HPCDF	NC	0.848 J													
1,2,3,4,7,8-HXCDD	NC	0.368 J													
1,2,3,4,7,8-HXCDF	NC	1.05 J													
1,2,3,6,7,8-HXCDD	NC	1.08 J													
1,2,3,6,7,8-HXCDF	NC	1.05 J													
1,2,3,7,8,9-HXCDD	NC	0.728 J													
1,2,3,7,8,9-HXCDF	NC	1.07 U													
1,2,3,7,8-PECDD	NC	1.32 J													
1,2,3,7,8-PECDF	NC	0.248 J													
2,3,4,6,7,8-HXCDF	NC	2.38 J													
2,3,4,7,8-PECDF	NC	2.98													
2,3,7,8-TCDD	20	0.214 U													
2,3,7,8-TCDF	NC	0.318 U													
TEQ	20	3.36 J													
TEQ HALFND	20	3.53 J													
TOTAL HPCDD	NC	61.7													
TOTAL HPCDF	NC	27.3													
TOTAL HXCDD	NC	8.39 J													
TOTAL HXCDF	NC	25.3 J													
TOTAL PECDD	NC	3.36 J													
TOTAL PECDF	NC	27.3 J													

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15	EU15
LOCATION ID		IOA-SS-EU15	SB07-305	SB07-305	SB07-305	SB07-305	SB07-306	SB07-306	SB07-311	SB07-326	SB07-326	SB07-327	SB07-327	SB07-328	SB07-328
SAMPLE ID		IOA-SS-EU15-0002-D	SB07-305-NSO-1104025	SB07-305-NSO-1104020	SB07-305-NSO-1104020-AVG	SB07-305-NSO-1104020-D	SB07-306-NSO-1104025	SB07-306-NSO-1104020	SB07-311-NSO-1104020	SB07-326-NSO-0716031	SB07-326-NSO-0716032	SB07-327-NSO-0716031	SB07-327-NSO-0716032	SB07-328-NSO-0716030	SB07-328-NSO-0716031
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		DUP	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110809	20021104	20021104	20021104	20021104	20021104	20021104	20021104	20030716	20030716	20030716	20030716	20030716	20030716
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0.5	0.5	0.5	0	0.5	0.5	1	1.5	1	1.5	0	1
BOTTOM DEPTH		2	0.5	1	1	1	0.5	1	1	1.5	2	1.5	2	1	2
TOTAL TCDD	NC	0.877 J													
TOTAL TCDF	NC	9.73 J													

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18	EU19	EU20	EU21	EU21	EU22
LOCATION ID		SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22
SAMPLE ID		SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515	20110811	19981216	20110811	19981216	20110811
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	1	0.5	0.5	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	1.5	1.5	1.5	2	2	1	1	2	1	2	1	2
VOLATILES (UG/KG)															
2-BUTANONE	4000								23 UJ						
ACETONE	6000								5.9 J						
BENZENE	2000								5.7 U			140 U		160 U	
ETHYLBENZENE	40000								5.7 U			140 U		160 U	
M+P-XYLENES	400000 [2]														
TOLUENE	30000								5.7 U			140 U		160 U	
TOTAL XYLENES	400000 [2]								5.7 U			140 U		160 U	
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000											2800 U		6030	
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000											2800 U		6030	
C9-C10 AROMATICS	100000											2800 U		3200 U	
C9-C12 ALIPHATICS	1000000											2800 U		3200 U	
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]											140 U		160 U	
TOTAL XYLENES	400000 [2]											140 U		160 U	
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700						100 UJ	19 UJ	360 U		19 UJ	350 U		**1040**	
ACENAPHTHENE	4000						48 J	22 J	360 U		19 UJ	350 U		360 U	
ACENAPHTHYLENE	1000						100 UJ	9 J	360 U		19 UJ	350 U		360 U	
ANTHRACENE	1000000						110 J	60 J	360 U		19 UJ	350 U		360 UJ	
BAP EQUIVALENT-HALFND	2000						495 J	318 J	87.7 J		78.4 J	58.1 J		61.8 J	
BAP EQUIVALENT-POS	2000						385 J	318 J	51.7 J		58 J	2.6 J		4.7 J	
BENZO(A)ANTHRACENE	7000						410 J	200 J	360 UJ		48 J	350 U		360 UJ	
BENZO(A)PYRENE	2000						300 J	220 J	34 J		46 J	2.6 J		4.7 J	
BENZO(B)FLUORANTHENE	7000						420 J	340 J	100 J		69 J	350 U		360 UJ	
BENZO(G,H,I)PERYLENE	1000000						100 J	130 J	360 UJ		27 J	350 U		360 UJ	
BENZO(K)FLUORANTHENE	70000						190 J	130 J	100 J		25 J	350 U		360 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	200000								360 UJ			350 U		360 UJ	
BUTYL BENZYL PHTHALATE	NC								360 UJ			350 U		360 UJ	
CARBAZOLE	NC								360 U			350 U		360 UJ	
CHRYSENE	70000						410 J	250 J	92 J		52 J	350 U		360 UJ	
DIBENZO(A,H)ANTHRACENE	700						200 UJ	30 J	6.6 J		37 UJ	2.1 U		2.2 U	
DIBENZOFURAN	NC								360 U			350 U		360 U	
DI-N-BUTYL PHTHALATE	NC								360 U			350 U		360 UJ	
FLUORANTHENE	1000000						830 J	450 J	140 J		74 J	350 U		360 UJ	
FLUORENE	1000000						60 J	25 J	360 U		19 UJ	350 U		360 U	
INDENO(1,2,3-CD)PYRENE	7000						200 UJ	120 J	360 UJ		37 UJ	350 U		360 UJ	
NAPHTHALENE	4000						100 UJ	19 UJ	360 U		19 UJ	140 U		160 U	
PHENANTHRENE	10000						480 J	290 J	91 J		27 J	350 U		360 UJ	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18	EU19	EU20	EU21	EU21	EU22
LOCATION ID		SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22
SAMPLE ID		SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515	20110811	19981216	20110811	19981216	20110811
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	1	0.5	0.5	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	1.5	1.5	1.5	2	2	1	1	2	1	2	1	2
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000								360 U			350 U		360 U	
PYRENE	1000000						640 J	400 J	170 J		97 J	350 U		360 UJ	
TOTAL PAHS	NC						4000 J	2680 J	734 J		465 J	2.6 J		1040 J	
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000								3.7 U						
4,4'-DDE	3000								11						
4,4'-DDT	3000								16 J						
ALDRIN	40								1.8 U						
ALPHA-CHLORDANE	700 [3]								42 J						
AROCLOR-1260	2000 [4]	1200	600	28 U	330	24 J	300	1800	480 J	120	7.4 U		7.6 U		10 J
DIELDRIN	50								3.7 U						
ENDOSULFAN II	500 [5]								3.7 U						
ENDOSULFAN SULFATE	500 [5]								3.7 U						
ENDRIN	8000								4.9						
ENDRIN ALDEHYDE	8000 [6]								18 J						
ENDRIN KETONE	8000 [6]								3.7 U						
GAMMA-CHLORDANE	700 [3]								41 J						
HEPTACHLOR	200								3.5 J						
HEPTACHLOR EPOXIDE	90								8.4 J						
METHOXYCHLOR	200000								18 U						
TOTAL AROCLOR	2000 [4]	1200	600	28 U	330	24 J	300	1800	480 J	120	7.4 U		7.6 U		10 J
METALS (MG/KG)															
ALUMINUM	NC						10000	6100	5110 J		7400	5280 J		6620 J	
ANTIMONY	20						0.15 U	0.71	0.21 U		0.097 U	0.18 UJ		0.21 J	
ARSENIC	20						1.3	1.2	2.1		5.9	1.8 J		1.9 J	
BARIUM	1000						21	21	15.8		21	9 J		14.6 J	
BERYLLIUM	100						0.29 U	0.43	0.28 J		0.34	0.31 J		0.35 J	
CADMIUM	2						0.55	0.57	0.24 U		0.21	0.21 U		0.23 U	
CALCIUM	NC						810 J	1100 J	725 J		810	653 J		702 J	
CHROMIUM	30 [7]						13	12	7.7		8.9	6.1 J		7.2 J	
COBALT	NC						2.8	2.8	2.2 J		3.9	4.6		4	
COPPER	NC						7	8.3	4.5		8.5	6.3		5	
IRON	NC						9900	15000	9160 J		10000	11500 J		10700 J	
LEAD	300						56 J	69 J	17.3 J		27	8 J		16.5 J	
MAGNESIUM	NC						1700 J	1800 J	995 J		1700	2170 J		1660 J	
MANGANESE	NC						160 J	390 J	96.7 J		180 J	357 J		191 J	
MERCURY	20						0.031 J	0.011 J	0.05 U		0.031	0.04 U		0.05 U	
NICKEL	20						7.6	6.9	3.7 J		8	7.1 J		5.5 J	
POTASSIUM	NC						240	290	246 J		240 J	260 J		240 U	
SELENIUM	400						0.98	1.1	0.33 U		0.58 U	0.29 UJ		0.32 UJ	
SILVER	100						0.06 J	0.087 J	0.28 UJ		0.084 U	0.07 U		0.07 U	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18	EU19	EU20	EU21	EU21	EU22
LOCATION ID		SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22
SAMPLE ID		SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515	20110811	19981216	20110811	19981216	20110811
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	1	0.5	0.5	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	1.5	1.5	1.5	2	2	1	1	2	1	2	1	2
SODIUM	NC						49 J	44 J	43.6		38 J	40.9 U		36.1 J	
METALS CONTINUED (MG/KG)															
THALLIUM	8						0.082 U	0.07 U	0.34 U		0.078 U	0.29 UJ		0.32 UJ	
VANADIUM	600						25	20	14.9 J		15	13 J		16 J	
ZINC	2500						36	70	30.7 J		35	29.2 J		26.3 J	
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100								0.23 U			0.21 U		0.21 U	
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000								18000 U			15000 U		736000	
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000								18000 U			15000 U		737000	
C19-C36 ALIPHATICS	3000000								8700 U			7200 U		7800 U	
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000								6500 U			5400 U		5800 U	
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC														
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC														
1,2,3,4,6,7,8,9-OCDF	NC														
1,2,3,4,6,7,8-HPCDD	NC														
1,2,3,4,6,7,8-HPCDF	NC														
1,2,3,4,7,8,9-HPCDF	NC														
1,2,3,4,7,8-HXCDD	NC														
1,2,3,4,7,8-HXCDF	NC														
1,2,3,6,7,8-HXCDD	NC														
1,2,3,6,7,8-HXCDF	NC														
1,2,3,7,8,9-HXCDD	NC														
1,2,3,7,8,9-HXCDF	NC														
1,2,3,7,8-PECDD	NC														
1,2,3,7,8-PECDF	NC														
2,3,4,6,7,8-HXCDF	NC														
2,3,4,7,8-PECDF	NC														
2,3,7,8-TCDD	20														
2,3,7,8-TCDF	NC														
TEQ	20														
TEQ HALFND	20														
TOTAL HPCDD	NC														
TOTAL HPCDF	NC														
TOTAL HXCDD	NC														
TOTAL HXCDF	NC														
TOTAL PECDD	NC														
TOTAL PECDF	NC														

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU15	EU15	EU15	EU15	EU15	EU16	EU17	EU18	EU18	EU19	EU20	EU21	EU21	EU22
LOCATION ID		SB07-329	SB07-329	SB07-336	SB07-337	SB07-338	IOA-SS-EU16	IOA-SS-EU17	MW11-131	SB11-205	IOA-SS-EU19	SB09-007	IOA-SS-EU21	SB09-008	IOA-SS-EU22
SAMPLE ID		SB07-329-NSO-0716030	SB07-329-NSO-0716031	SB07-336-NSO-101503	SB07-337-NSO-101503	SB07-338-NSO-101503	IOA-SS-EU16-0002	IOA-SS-EU17-0002	MW11131-NSO-122198-0	SB11-205-NSO-0515010	IOA-SS-EU19-0002	SB09007-NSO-121698-0	IOA-SS-EU21-0002	SB09008-NSO-121698-0	IOA-SS-EU22-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20030716	20030716	20031015	20031015	20031015	20110810	20110810	19981221	20010515	20110811	19981216	20110811	19981216	20110811
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	1	1	0.5	0.5	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	1.5	1.5	1.5	2	2	1	1	2	1	2	1	2
TOTAL TCDD	NC														
TOTAL TCDF	NC														

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26	EU26	EU27	EU27	EU27	EU28	EU28
LOCATION ID		SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN
SAMPLE ID		SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209	20030716	19960805	19960805	20110810	20040311	20040311
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	1	1	1	0	0	0	1	1	0	0	0
BOTTOM DEPTH		1	2	1	3	3	2.2	1	1	1	3	3	2	1	1
VOLATILES (UG/KG)															
2-BUTANONE	4000			24 UJ				21 U	21 U						
ACETONE	6000			74 J				21 U	21 U						
BENZENE	2000	220 U		4.8 UJ	290 U	280 U	280 U	5.3 U	5.2 U		310 U	270 U			
ETHYLBENZENE	40000	220 U		4.8 UJ	290 U	280 U	280 U	5.3 U	5.2 U		310 U	270 U			
M+P-XYLENES	400000 [2]			4.8 UJ											
TOLUENE	30000	220 U		4.8 UJ	880 U	840 U	840 U	5.3 U	1.3 J		940 U	820 U			
TOTAL XYLENES	400000 [2]	220 U		4.8 UJ	1200 U	1100 U	1100 U	5.3 U	5.2 U		1200 U	1100 U			
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000	4400 U			295 U	280 U	280 U				315 U	270 U			
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000	4400 U													
C9-C10 AROMATICS	100000	4400 U			590 U	560 U	3400				630 U	540 U			
C9-C12 ALIPHATICS	1000000	4400 U			29.5 UJ	28 UJ	480 J				31.5 U	27 U			
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]	220 U		4.8 UJ	590 U	560 U	560 U				630 U	540 U			
TOTAL XYLENES	400000 [2]	220 U		4.8 UJ	590 U	560 U	560 U				630 U	540 U			
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700	2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	100 J		390 U	520 U		22 U	21 U
ACENAPHTHENE	4000	2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U		390 U	520 U		22 U	21 U
ACENAPHTHYLENE	1000	2.5 U	15 J	260 U	370 U	350 U	350 U	350 U	340 U		390 U	520 U		22 U	21 U
ANTHRACENE	1000000	2.5 U	35 J	260 U	370 U	350 U	350 U	350 U	340 U		390 U	520 U		22 U	21 U
BAP EQUIVALENT-HALFND	2000	15 J	186 J	260 U	268 J	350 U	246 J	480 J	89.5 J		390 U	520 U		22 U	21 U
BAP EQUIVALENT-POS	2000	14.6 J	154 J	260 U	43.8 J	350 U	54 J	480 J	87.8 J		390 U	520 U		22 U	21 U
BENZO(A)ANTHRACENE	7000	2.5 U	110 J	260 U	370 U	350 U	39 J	280 J	78 J		390 U	520 U		22 U	21 U
BENZO(A)PYRENE	2000	12 J	120 J	260 U	370 U	350 U	46 J	330 J	45 J		390 U	520 U		22 U	21 U
BENZO(B)FLUORANTHENE	7000	2.5 U	220 J	260 U	370 U	350 U	36 J	440 J	170 J		390 U	520 U		22 U	21 U
BENZO(G,H,I)PERYLENE	1000000	2.5 U	59 J	50 J	140 J	350 U	40 J	200 J	87 J		390 U	520 U		22 U	21 U
BENZO(K)FLUORANTHENE	70000	2.5 U	87 J	260 U	370 U	350 U	45 J	130 J	340 UJ		390 U	520 U		22 U	21 U
BIS(2-ETHYLHEXYL)PHTHALATE	200000	360 UJ		260 U				350 U	340 UJ						
BUTYL BENZYL PHTHALATE	NC	360 UJ		260 U				350 U	340 UJ						
CARBAZOLE	NC	360 UJ		260 U				350 U	340 U						
CHRYSENE	70000	2.5 U	140 J	260 U	370 U	350 U	49 J	320 J	120 J		390 U	520 U		22 U	21 U
DIBENZO(A,H)ANTHRACENE	700	2.6 J	59 UJ	260 U	36 J	350 U	350 U	57 J	7.9 J		390 U	520 U		22 U	21 U
DIBENZOFURAN	NC	360 U		260 U				350 U	340 U						
DI-N-BUTYL PHTHALATE	NC	360 UJ		260 U				350 U	340 U						
FLUORANTHENE	1000000	2.5 U	280 J	260 U	370 U	350 U	67 J	550	100 J		390 U	520 U		22 U	21 U
FLUORENE	1000000	2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U		390 U	520 U		22 U	21 U
INDENO(1,2,3-CD)PYRENE	7000	2.5 U	59 UJ	260 U	78 J	350 U	350 U	190 J	100 J		390 U	520 U		22 U	21 U
NAPHTHALENE	4000	2.5 U	29 UJ	260 U	370 U	350 U	350 U	350 U	340 U		390 U	520 U		22 U	21 U
PHENANTHRENE	10000	2.5 U	170 J	260 U	370 U	350 U	36 J	400	76 J		390 U	520 U		22 U	21 U

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26	EU26	EU27	EU27	EU27	EU28	EU28
LOCATION ID		SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN
SAMPLE ID		SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209	20030716	19960805	19960805	20110810	20040311	20040311
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	1	1	1	0	0	0	1	1	0	0	0
BOTTOM DEPTH		1	2	1	3	3	2.2	1	1	1	3	3	2	1	1
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000	360 U		260 U				350 U	340 U						
PYRENE	1000000	74 J	340 J	260 U	370 U	350 U	59 J	740	190 J		390 U	2100 J		22 U	21 U
TOTAL PAHS	NC	88.6 J	1580 J	50 J	254 J	350 U	417 J	3640 J	1070 J		390 U	2100 J		22 U	21 U
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000			1.6 U				3.5 U	3.4 U						
4,4'-DDE	3000			1.6 U				3.5 U	3.4 U						
4,4'-DDT	3000			3.2 J				3.5 U	3.4 J						
ALDRIN	40			0.81 U				1.8 U	1.7 U						
ALPHA-CHLORDANE	700 [3]			0.81 U				1.8 U	1.7 U						
AROCLOR-1260	2000 [4]		8 J	31 J				35 U	34 U				7.3 U		
DIELDRIN	50			1.6 U				3.5 U	3.4 U						
ENDOSULFAN II	500 [5]			1.6 U				3.5 U	3.4 U						
ENDOSULFAN SULFATE	500 [5]			1.6 U				3.5 U	3.4 U						
ENDRIN	8000			1.6 U				3.5 U	3.4 U						
ENDRIN ALDEHYDE	8000 [6]			1.6 U				3.5 U	3.4 U						
ENDRIN KETONE	8000 [6]			1.6 U				3.5 U	3.4 U						
GAMMA-CHLORDANE	700 [3]			0.81 U				1.8 U	1.7 U						
HEPTACHLOR	200			0.81 U				1.8 U	1.7 U						
HEPTACHLOR EPOXIDE	90			0.81 U				6.2 J	1.7 U						
METHOXYCHLOR	200000			8.1 U				18 U	17 U						
TOTAL AROCLOR	2000 [4]		8 J	31 J				40 U	39 U				7.3 U		
METALS (MG/KG)															
ALUMINUM	NC	7330 J	6800	5600				7620 J	7100 J				7100		
ANTIMONY	20	0.2 UJ	0.22 U	0.6 U				0.18 UJ	0.2 UJ				0.26 U		
ARSENIC	20	1.9 J	2.2	3 J				3 J	2.1				2.1		
BARIUM	1000	16.9 J	19	12 J				23.5 J	12.2 J				19		
BERYLLIUM	100	0.38 J	0.38	0.39 J				0.5	0.33 J				0.33 U		
CADMIUM	2	0.23 J	0.44	0.028 J				0.21 UJ	0.23 U				0.18 U		
CALCIUM	NC	759 J	1500	440 U				3780	1000 J				870 J		
CHROMIUM	30 [7]	8	7.5	6.8				12	9.1 J				9.4		
COBALT	NC	3.4	3.4	3.9 J				4.5	4.6				4.4		
COPPER	NC	6	6.6 J	6.7				10.9	10.7				7.1		
IRON	NC	11900 J	12000	11000				13200 J	13100 J				14000		
LEAD	300	29.8 J	26	10				28.9	8.7 J				25 J		
MAGNESIUM	NC	1710 J	1700	1800				2560 J	2790 J				3100 J		
MANGANESE	NC	185 J	150 J	210				156 J	233 J				140 J		
MERCURY	20	0.05 U	0.023 J	0.0098 J					0.04 UJ				0.075		
NICKEL	20	6.5 J	8.7	6.3				11.6	7.8				16		
POTASSIUM	NC	314 J	310 J	300 U				596 J	286				330		
SELENIUM	400	0.32 UJ	0.29 J	0.62 U				0.29 UJ	0.32 U				0.5 J		
SILVER	100	0.08 U	0.06 J	0.12 R				0.07 UJ	0.27 UJ				0.1 U		

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26	EU26	EU27	EU27	EU27	EU28	EU28
LOCATION ID		SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN
SAMPLE ID		SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209	20030716	19960805	19960805	20110810	20040311	20040311
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	1	1	1	0	0	0	1	1	0	0	0
BOTTOM DEPTH		1	2	1	3	3	2.2	1	1	1	3	3	2	1	1
SODIUM	NC	46.5 J	29 J	62 U				77.5 J	44.6				37 J		
METALS CONTINUED (MG/KG)															
THALLIUM	8	0.32 UJ	0.11 U	0.62 UJ				0.3 U	0.32 U				0.075 U		
VANADIUM	600	21.6 J	20	20				39.8 J	13.8 J				33		
ZINC	2500	29.9 J	40	40				55.6 J	33.8 J				57		
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100	0.23 U		1 U				0.22 U	0.21 U						
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000	85 U			65000	9000 U	9100 U	24000	17000 U		10000 U	8800 U			
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000	85 U													
C19-C36 ALIPHATICS	3000000	68200			1250	21 U	21.5 U	52000	18000		24 U	21 U			
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000	6400 U			2500	160 U	160 U	8900 J	8200 J		180 U	155 U			
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC							85000 J	30000 U						
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC			47				313.74 R	165.04 U	32			544		
1,2,3,4,6,7,8,9-OCDF	NC			0.41 U				28.27 R	15.99 J	57			7.14		
1,2,3,4,6,7,8-HPCDD	NC			1.7 U				13.07 R	7.36 U	2 U			37.6		
1,2,3,4,6,7,8-HPCDF	NC			0.47 U				17.49 R	8.86	32			5.42		
1,2,3,4,7,8,9-HPCDF	NC			0.25 U				0.64 R	0.35	0.75 U			0.989 U		
1,2,3,4,7,8-HXCDD	NC			0.3 U				0.21 R	0.11 J	0.21 U			0.344 J		
1,2,3,4,7,8-HXCDF	NC			0.2 U				4.46 R	2.1	3.5 J			1.04 J		
1,2,3,6,7,8-HXCDD	NC			0.28 U				0.56 R	0.24 J	0.21 U			1.06 J		
1,2,3,6,7,8-HXCDF	NC			0.19 U				1.48 R	0.69	1.9 U			1.31 J		
1,2,3,7,8,9-HXCDD	NC			0.83 U				0.52 R	0.17 J	0.2 U			0.735 J		
1,2,3,7,8,9-HXCDF	NC			0.23 U				0.1 R	0.17 U	0.69 U			0.989 U		
1,2,3,7,8-PECDD	NC			0.47 U				0.16 R	0.09 U	0.37 U			0.247 U		
1,2,3,7,8-PECDF	NC			0.33 U				0.56 R	0.26	0.68 U			0.28 J		
2,3,4,6,7,8-HXCDF	NC			0.27 U				1.22 R	0.62 J	0.98 U			2.83		
2,3,4,7,8-PECDF	NC			0.33 U				0.8 R	0.34	0.62 U			4.04		
2,3,7,8-TCDD	20			0.33 U				6.85 R	0.92	4.2			0.367 UJ		
2,3,7,8-TCDF	NC			0.33 U				0.31 R	0.23 J	0.71 U			0.659 J		
TEQ	20			0.0141				6.85 R	1.54	4.9			2.61 J		
TEQ HALFND	20			0.612				6.85 R	1.65	5.44			2.98 J		
TOTAL HPCDD	NC			1.9 U				23.31	12.78	2.2 U			80.2		
TOTAL HPCDF	NC			0.47 U				25.46	12	35			11.9		
TOTAL HXCDD	NC			4.7				4.2	1.33	0.59 U			9.93 J		
TOTAL HXCDF	NC			0.67 U				31.51	12.13	18			28.6		
TOTAL PECDD	NC			3.2				1.59	0.34	0.37 U			3.58 J		
TOTAL PECDF	NC			1.3 U				34.62	16.29	11			39.8 J		

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU22	EU23	EU24	EU26	EU26	EU26	EU26	EU26	EU26	EU27	EU27	EU27	EU28	EU28
LOCATION ID		SB09-009	IOA-SS-EU23	SB06-343	B8-MW-02	B8-MW-03	B8-MW-04	SB06-010	SB06-011	SB06-304	B8-MW-05	B8-MW-06	IOA-SS-EU27	AOC13-S1-SWE	AOC13-S1-SWN
SAMPLE ID		SB09009-NSO-121698-0	IOA-SS-EU23-0002	SB06-343-NSO-072503	B8-8SB2AA	B8-8SB3AA	B8-8SB4AA	SB06010-NSO-120998-0	SB06011-NSO-120998-0	SB06-304-NSO-0716030	B8-8SB5AA	B8-8SB6AA	IOA-SS-EU27-0002	S1SWE	S1SWN
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981216	20110810	20030725	19960730	19960731	19960802	19981209	19981209	20030716	19960805	19960805	20110810	20040311	20040311
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	1	1	1	0	0	0	1	1	0	0	0
BOTTOM DEPTH		1	2	1	3	3	2.2	1	1	1	3	3	2	1	1
TOTAL TCDD	NC			18				7.15	0.92	4.8			1.88 J		
TOTAL TCDF	NC			97				12.18	6.04	7.9			12.8 J		

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID		AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001
SAMPLE ID		S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20040311	20040311	20040311	20040311	20040311	20040311	20040929	20040929	20040929	20040929	20040930	20040930	20110809	19981208
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	2	1
VOLATILES (UG/KG)															
2-BUTANONE	4000														19 J
ACETONE	6000														81 J
BENZENE	2000														6.6 R
ETHYLBENZENE	40000														6.6 R
M+P-XYLENES	400000 [2]														
TOLUENE	30000														6.6 R
TOTAL XYLENES	400000 [2]														6.6 R
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000														
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000														
C9-C12 ALIPHATICS	1000000														
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]														
TOTAL XYLENES	400000 [2]														
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U	24 U	24 U	23 U	21 U	7.4 J		1600 UJ
ACENAPHTHENE	4000	22 U	5.4 J	16.2 J	27	22 U	21 U	24 U	16 J	20 J	23 U	21 U	63		920
ACENAPHTHYLENE	1000	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U	24 U	24 U	23 U	21 U	24 U		1600 UJ
ANTHRACENE	1000000	22 U	19 J	48 J	77	22 U	5.5 J	8.4 J	24.7 J	41	23 U	21 U	130		2500 J
BAP EQUIVALENT-HALFND	2000	22 U	75.2 J	141 J	206 J	22.5 J	46.1 J	40.7 J	92.4 J	144 J	23 U	21 U	413		**6710 J**
BAP EQUIVALENT-POS	2000	22 U	75.2 J	141 J	206 J	11.4 J	46.1 J	28.7 J	86.4 J	144 J	23 U	21 U	413		**6710 J**
BENZO(A)ANTHRACENE	7000	22 U	54	112	170	9.3 J	25	24	67	110	23 U	21 U	300		6000 J
BENZO(A)PYRENE	2000	22 U	50	95	140	8.7 J	29	21 J	57 J	93	23 U	21 U	270		**4800 J**
BENZO(B)FLUORANTHENE	7000	22 U	64	117	170	11 J	46	36	88	140	23 U	21 U	370		6100 J
BENZO(G,H,I)PERYLENE	1000000	22 U	34	57.5	81	22 U	24	15 J	43 J	71	23 U	21 U	210		2900 J
BENZO(K)FLUORANTHENE	70000	22 U	25	44.5	64	22 U	17 J	12 J	29 J	46	23 U	21 U	130		4600 J
BIS(2-ETHYLHEXYL)PHTHALATE	200000														610
BUTYL BENZYL PHTHALATE	NC														2800 U
CARBAZOLE	NC														960
CHRYSENE	70000	22 U	53	102	150	9 J	31	28	69	110	23 U	21 U	320		6800 J
DIBENZO(A,H)ANTHRACENE	700	22 U	9.2 J	15.1 J	21 J	22 U	7 J	24 U	14.5 J	17 J	23 U	21 U	52		290 J
DIBENZOFURAN	NC														2800 U
DI-N-BUTYL PHTHALATE	NC														2800 U
FLUORANTHENE	1000000	22 U	110	235	360	17 J	52	70	185	300	23 U	21 U	730		14000 J
FLUORENE	1000000	22 U	22 U	20.5	30	22 U	21 U	24 U	16.5 J	21 J	23 U	21 U	57		850
INDENO(1,2,3-CD)PYRENE	7000	22 U	39	68.5	98	6.3 J	28	16 J	50.5 J	85	23 U	21 U	220		3600 J
NAPHTHALENE	4000	22 U	22 U	21.5 U	21 U	22 U	21 U	24 U	24 U	24 U	23 U	21 U	7.1 J		1600 UJ
PHENANTHRENE	10000	22 U	64	167	270	22 U	17 J	48	134	220	23 U	21 U	560		9900 J

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID		AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001
SAMPLE ID		S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20040311	20040311	20040311	20040311	20040311	20040311	20040929	20040929	20040929	20040929	20040930	20040930	20110809	19981208
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	2	1
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000														2800 U
PYRENE	1000000	22 U	88	179	270	13 J	43	55	138	220	23 U	21 U	560		13000 J
TOTAL PAHS	NC	22 U	615 J	1270 J	1930 J	74.3 J	324 J	333 J	912 J	1490 J	23 U	21 U	3990 J		76300 J
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000														33 J
4,4'-DDE	3000														29
4,4'-DDT	3000														66 J
ALDRIN	40														1.7 U
ALPHA-CHLORDANE	700 [3]														1.7 U
AROCLOR-1260	2000 [4]														34 U
DIELDRIN	50														3.4 U
ENDOSULFAN II	500 [5]														7.8 J
ENDOSULFAN SULFATE	500 [5]														11 J
ENDRIN	8000														3.4 U
ENDRIN ALDEHYDE	8000 [6]														23 J
ENDRIN KETONE	8000 [6]														16 J
GAMMA-CHLORDANE	700 [3]														1.7 U
HEPTACHLOR	200														1.7 U
HEPTACHLOR EPOXIDE	90														63 J
METHOXYCHLOR	200000														38 J
TOTAL AROCLOR	2000 [4]														39 U
METALS (MG/KG)															
ALUMINUM	NC														4740 J
ANTIMONY	20														0.19 UJ
ARSENIC	20														2.6
BARIUM	1000														13.5
BERYLLIUM	100														0.4 J
CADMIUM	2														0.33 J
CALCIUM	NC														761
CHROMIUM	30 [7]														11.9
COBALT	NC														3.4
COPPER	NC														61.9
IRON	NC														11100
LEAD	300														90.7
MAGNESIUM	NC														1600
MANGANESE	NC														209
MERCURY	20														0.07 U
NICKEL	20														8.9
POTASSIUM	NC														281
SELENIUM	400														0.31 U
SILVER	100														0.26 UJ

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID		AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001
SAMPLE ID		S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20040311	20040311	20040311	20040311	20040311	20040311	20040929	20040929	20040929	20040929	20040930	20040930	20110809	19981208
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	2	1
SODIUM	NC														40.6 U
METALS CONTINUED (MG/KG)															
THALLIUM	8														0.31 U
VANADIUM	600														33.1
ZINC	2500														53.2
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100														0.22 U
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000														110000 J
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000														71000 J
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000														8400 J
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC														190000 J
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC													704	
1,2,3,4,6,7,8,9-OCDF	NC													6.03	
1,2,3,4,6,7,8-HPCDD	NC													16.7	
1,2,3,4,6,7,8-HPCDF	NC													4.77	
1,2,3,4,7,8,9-HPCDF	NC													1.08 U	
1,2,3,4,7,8-HXCDD	NC													0.254 J	
1,2,3,4,7,8-HXCDF	NC													1.3 J	
1,2,3,6,7,8-HXCDD	NC													0.539 U	
1,2,3,6,7,8-HXCDF	NC													1.75 J	
1,2,3,7,8,9-HXCDD	NC													0.539 U	
1,2,3,7,8,9-HXCDF	NC													0.502 J	
1,2,3,7,8-PECDD	NC													0.269 U	
1,2,3,7,8-PECDF	NC													0.539 U	
2,3,4,6,7,8-HXCDF	NC													4.23	
2,3,4,7,8-PECDF	NC													7.6	
2,3,7,8-TCDD	20													0.219 U	
2,3,7,8-TCDF	NC													0.568 UJ	
TEQ	20													3.51 J	
TEQ HALFND	20													3.85 J	
TOTAL HPCDD	NC													40.1	
TOTAL HPCDF	NC													10.5 J	
TOTAL HXCDD	NC													3.3 J	
TOTAL HXCDF	NC													43.4 J	
TOTAL PECDD	NC													1.75 J	
TOTAL PECDF	NC													57.3 J	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28	EU28
LOCATION ID		AOC13-S1-SWW	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWE	AOC13-S2-SWN	AOC13-S2-SWW	AOC13-SW01	AOC13-SW01	AOC13-SW01	AOC13-SW02	AOC13-SW03	AOC13-SW04	IOA-SS-EU28	SB06-001
SAMPLE ID		S1SWW	S2SWE	S2SWE-AVG	S2SWE-D	S2SWN	S2SWW	NAS-AOC13-SW01	NAS-AOC13-SW01-AVG	NAS-AOC13-SW01-D	NAS-AOC13-SW02	NAS-AOC13-SW03	NAS-AOC13-SW04	IOA-SS-EU28-0002	SB06001-NSO-120898-0
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20040311	20040311	20040311	20040311	20040311	20040311	20040929	20040929	20040929	20040929	20040930	20040930	20110809	19981208
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1	1	2	1
TOTAL TCDD	NC													0.219 U	
TOTAL TCDF	NC													13.2 J	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	
LOCATION ID		SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	
SAMPLE ID		SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	
MATRIX	MCP S-1/GW-1 Standards[1]	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	
SAMPLE DATE		19981208	20110810	20110810	20110810	20110810	20110810	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BOTTOM DEPTH		1	2	2	2	2	2	2	2	2	2	2	2	2	2	
VOLATILES (UG/KG)																
2-BUTANONE	4000	23 U														
ACETONE	6000	91 J														
BENZENE	2000	5.8 U														
ETHYLBENZENE	40000	5.8 U														
M+P-XYLENES	400000 [2]															
TOLUENE	30000	5.8 U														
TOTAL XYLENES	400000 [2]	5.8 U														
VPH MADEP (UG/KG)																
C5-C8 ALIPHATICS	100000															
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000															
C5-C8 ALIPHATICS-UNADJ	100000															
C9-C10 AROMATICS	100000															
C9-C12 ALIPHATICS	1000000															
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000															
O-XYLENE	400000 [2]															
TOTAL XYLENES	400000 [2]															
VOLATILE PETROLEUM HYDROCARBONS	NC															
SEMIVOLATILES (UG/KG)																
2-METHYLNAPHTHALENE	700	580	18 J	29.5 J	41 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	13 J		
ACENAPHTHENE	4000	2800 J	330 J	275 J	220 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	18 UJ	8 J	18 UJ	120 J		
ACENAPHTHYLENE	1000	340 J	13 J	28.8 J	89 UJ	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	13 J	20 UJ	18 UJ	10 J		
ANTHRACENE	1000000	5400 J	660 J	585 J	510 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	11 J	19 J	18 UJ	210 J		
BAP EQUIVALENT-HALFND	2000	**15600 J**	1880 J	1920 J	1960 J	154 J	95 UJ	47.4 J	43.8 J	40.2 J	75.1 J	85.9 J	30.5 J	648 J		
BAP EQUIVALENT-POS	2000	**15600 J**	1880 J	1920 J	1960 J	4 J	95 UJ	27 J	23.2 J	19.3 J	57.1 J	63.9 J	0.7 J	648 J		
BENZO(A)ANTHRACENE	7000	**12000 J**	1700 J	1600 J	1500 J	40 J	95 UJ	20 J	18 J	16 J	37 J	51 J	18 UJ	630 J		
BENZO(A)PYRENE	2000	**11000 J**	1300 J	1350 J	1400 J	92 UJ	95 UJ	20 J	17.5 J	15 J	42 J	51 J	18 UJ	440 J		
BENZO(B)FLUORANTHENE	7000	**17000 J**	2000 J	1950 J	1900 J	92 UJ	95 UJ	48 J	37 J	26 J	77 J	74 J	7 J	750 J		
BENZO(G,H,I)PERYLENE	1000000	8200 J	480 J	535 J	590 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	36 J	31 J	18 UJ	150 J		
BENZO(K)FLUORANTHENE	70000	9400 J	800 J	845 J	890 J	92 UJ	95 UJ	20 J	16 J	12 J	53 J	36 J	18 UJ	250 J		
BIS(2-ETHYLHEXYL)PHTHALATE	200000	1400 J														
BUTYL BENZYL PHTHALATE	NC	150 J														
CARBAZOLE	NC	2200														
CHRYSENE	70000	14000 J	1800 J	1700 J	1600 J	92 UJ	95 UJ	33 J	25.5 J	18 J	53 J	67 J	18 UJ	700 J		
DIBENZO(A,H)ANTHRACENE	700	**720 J**	150 J	150 J	150 J	180 UJ	190 UJ	37 UJ	37.5 UJ	38 UJ	36 UJ	40 UJ	36 UJ	52 J		
DIBENZOFURAN	NC	1300														
DI-N-BUTYL PHTHALATE	NC	350 U														
FLUORANTHENE	1000000	28000 J	2600 J	3050 J	3500 J	39 J	95 UJ	49 J	37.5 J	26 J	68 J	150 J	7 J	1300 J		
FLUORENE	1000000	2500 J	250 J	235 J	220 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	97 J		
INDENO(1,2,3-CD)PYRENE	7000	**8300 J**	480 J	530 J	580 J	180 UJ	190 UJ	37 UJ	37.5 UJ	38 UJ	31 J	40 UJ	36 UJ	150 J		
NAPHTHALENE	4000	670	19 J	45 J	71 J	92 UJ	95 UJ	19 UJ	19 UJ	19 UJ	18 UJ	20 UJ	18 UJ	21 J		
PHENANTHRENE	10000	**18000 J**	1800 J	2000 J	2200 J	92 UJ	95 UJ	11 J	10.2 J	19 UJ	30 J	95 J	18 UJ	1000 J		

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37	
LOCATION ID		SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37	
SAMPLE ID		SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002	
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	
SAMPLE DATE		19981208	20110810	20110810	20110810	20110810	20110810	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809	
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BOTTOM DEPTH		1	2	2	2	2	2	2	2	2	2	2	2	2	2	
SEMIVOLATILES (CONTINUED) (UG/KG)																
PHENOL	1000	350 U														
PYRENE	1000000	33000 J	2900 J	2950 J	3000 J	92 UJ	95 UJ	55 J	41.5 J	28 J	61 J	110 J	18 UJ	1300 J		
TOTAL PAHS	NC	172000 J	17300 J	17800 J	18400 J	79 J	106 UJ	256 J	198 J	141 J	512 J	692 J	14 J	7190 J		
PESTICIDES/PCBS (UG/KG)																
4,4'-DDD	4000	53 J														
4,4'-DDE	3000	110 J														
4,4'-DDT	3000	130 J														
ALDRIN	40	5.1 J														
ALPHA-CHLORDANE	700 [3]	18 J														
AROCLOR-1260	2000 [4]	35 U	59	61	63	86	150	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		
DIELDRIN	50	3.5 U														
ENDOSULFAN II	500 [5]	26 J														
ENDOSULFAN SULFATE	500 [5]	53 J														
ENDRIN	8000	3.5 U														
ENDRIN ALDEHYDE	8000 [6]	41 J														
ENDRIN KETONE	8000 [6]	74 J														
GAMMA-CHLORDANE	700 [3]	2.5 J														
HEPTACHLOR	200	1.7 U														
HEPTACHLOR EPOXIDE	90	**200 J**														
METHOXYCHLOR	200000	17 U														
TOTAL AROCLOR	2000 [4]	40 U	59	61	63	86	150	7.4 U	7.55 U	7.7 U	7.1 U	7.8 U	7.1 U	7.6 U		
METALS (MG/KG)																
ALUMINUM	NC	5230 J	7800	6900	6000	13000	7000	4800	4650	4500	7100	7600	6500	9400		
ANTIMONY	20	0.21 UJ	0.24 U	0.22 U	0.2 U	0.1 U	0.092 U	0.088 U	0.08 U	0.072 U	0.1 U	0.097 U	0.085 U	0.16 U		
ARSENIC	20	4.1	6.4	5.7	5	1.5	2.2	1.1	1.15	1.2	1.7	1.6	1.2	2.3		
BARIUM	1000	18	18	16.5	15	17	17	11	12.5	14	16	22	12	22		
BERYLLIUM	100	0.43 J	0.46	0.42	0.38	0.42	0.41	0.36 J	0.34 J	0.32 J	0.4	0.53	0.31 J	0.45		
CADMIUM	2	0.24 U	0.24 U	0.22 U	0.2 U	0.15 U	0.27 U	0.13 U	0.108 J	0.15 J	0.18	0.21	0.16 J	0.33		
CALCIUM	NC	640	480 J	400 J	320 J	1100 J	1100 J	760	735	710	1300	1600	1200	1200		
CHROMIUM	30 [7]	18.7	14	12	10	17	10	6.2	5.7	5.2	7	8.2	9	15		
COBALT	NC	4	3	2.55	2.1	3.9	4.1	3.7	3.65	3.6	4.3	5.6	3.6	4.9		
COPPER	NC	62.8	4.2	3.75	3.3	5.7	9.2	7.8	7.6	7.4	7.8 J	6.1 J	7.9 J	13 J		
IRON	NC	13200	21000	19000	17000	16000	18000	8800	8450	8100	15000	22000	12000	18000		
LEAD	300	114	20 J	16 J	12 J	9.3 J	10 J	7.1	6.8	6.5	10	9.9	8.2	32		
MAGNESIUM	NC	2160	1800 J	1450 J	1100 J	3600 J	2600 J	1700	1650	1600	2500	2100	2300	3000		
MANGANESE	NC	294	100 J	92 J	84 J	200 J	440 J	210 J	220 J	230 J	240 J	380 J	200 J	350 J		
MERCURY	20	0.2 UJ	0.0073 J	0.0073 J	0.0073 J	0.019 J	0.0014 J	0.011 U	0.0038 J	0.002 J	0.004 J	0.003 J	0.002 J	0.022 J		
NICKEL	20	11.3	7.7	6.35	5	11	9	6.7	6.1	5.5	7.1	7.7	7.7	9.9		
POTASSIUM	NC	292	480	435	390	230	440	280 J	265 J	250 J	480 J	310 J	320 J	440 J		
SELENIUM	400	0.37 J	0.79 J	0.635 J	0.48 J	0.85 J	0.48 J	0.7 U	0.67 U	0.64 U	0.35 J	0.24 J	0.63 U	0.65 U		
SILVER	100	0.28 U	0.092 U	0.0795 U	0.067 U	0.095 U	0.06 U	0.096 U	0.082 U	0.068 U	0.078 U	0.1 U	0.085 U	0.1 U		

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37
LOCATION ID		SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37
SAMPLE ID		SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981208	20110810	20110810	20110810	20110810	20110810	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	2	2	2	2	2	2	2	2	2	2	2	2
SODIUM	NC	38.8 U	38 J	33 J	28 J	46 J	59 J	37 J	35.5 J	34 J	54 J	47 J	49 J	58 J	
METALS CONTINUED (MG/KG)															
THALLIUM	8	0.34 U	0.088 U	0.088 U	0.088 U	0.089 U	0.079 U	0.093 U	0.0895 U	0.086 U	0.066 U	0.076 U	0.084 U	0.087 U	
VANADIUM	600	38	39	34.5	30	21	17	12	11.5	11	19	16	11	19	
ZINC	2500	70	29	25	21	34	36	30	29.5	29	38	33	33	44	
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100	0.22 U													
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000	260000 J													
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000	73000													
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000	12000 J													
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC	340000 J													
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC													583	359
1,2,3,4,6,7,8,9-OCDF	NC													5.07	5.87
1,2,3,4,6,7,8-HPCDD	NC													21.2	12
1,2,3,4,6,7,8-HPCDF	NC													4.1	4.91
1,2,3,4,7,8,9-HPCDF	NC													0.972 U	1.05 U
1,2,3,4,7,8-HXCDD	NC													0.486 U	0.135 J
1,2,3,4,7,8-HXCDF	NC													0.892 J	0.994 J
1,2,3,6,7,8-HXCDD	NC													0.765 J	0.302 J
1,2,3,6,7,8-HXCDF	NC													0.912 J	0.568 J
1,2,3,7,8,9-HXCDD	NC													0.454 J	0.317 J
1,2,3,7,8,9-HXCDF	NC													0.972 U	1.05 U
1,2,3,7,8-PECDD	NC													0.239 J	0.264 U
1,2,3,7,8-PECDF	NC													0.281 J	0.294 J
2,3,4,6,7,8-HXCDF	NC													2.15 J	0.868 J
2,3,4,7,8-PECDF	NC													3.18	1.32 J
2,3,7,8-TCDD	20													0.422 J	0.439 J
2,3,7,8-TCDF	NC													0.444 U	0.419 U
TEQ	20													2.57 J	1.44 J
TEQ HALFND	20													2.67 J	1.65 J
TOTAL HPCDD	NC													50.8	28.4
TOTAL HPCDF	NC													8.25	6.72 J
TOTAL HXCDD	NC													5.21 J	2.64 J
TOTAL HXCDF	NC													21 J	9.48 J
TOTAL PECDD	NC													2.01 J	0.45 J
TOTAL PECDF	NC													27 J	12.2 J

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU28	EU29	EU29	EU29	EU30	EU31	EU32	EU32	EU32	EU33	EU34	EU35	EU36	EU37
LOCATION ID		SB06-002	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU29	IOA-SS-EU30	IOA-SS-EU31	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU32	IOA-SS-EU33	IOA-SS-EU34	IOA-SS-EU35	IOA-SS-EU36	IOA-SS-EU37
SAMPLE ID		SB06002-NSO-120898-0	IOA-SS-EU29-0002	IOA-SS-EU29-0002-AVG	IOA-SS-EU29-0002-D	IOA-SS-EU30-0002	IOA-SS-EU31-0002	IOA-SS-EU32-0002	IOA-SS-EU32-0002-AVG	IOA-SS-EU32-0002-D	IOA-SS-EU33-0002	IOA-SS-EU34-0002	IOA-SS-EU35-0002	IOA-SS-EU36-0002	IOA-SS-EU37-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981208	20110810	20110810	20110810	20110810	20110810	20110811	20110811	20110811	20110810	20110810	20110810	20110810	20110809
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	2	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL TCDD	NC													1.21 J	0.439 J
TOTAL TCDF	NC													7.16 J	5.5 J

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU37	EU37	EU37	EU37	EU37	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39
LOCATION ID		MW06-013	SB06-008	SB06-008	SB06-008	SB06-009	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020
SAMPLE ID		MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE		19981124	19981208	19981208	19981208	19981208	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	2	1	1	1
VOLATILES (UG/KG)															
2-BUTANONE	4000	21 R	22 U	22 U	22 U	21 U	26 UJ		22 U	2.2 J	140 J		24 U	24 U	
ACETONE	6000	21 R	13 J	14 J	15 J	16 J	43 J		20 J	19 J	92 J		140 J	21 J	
BENZENE	2000	5.1 R	5.5 U	5.55 U	5.6 U	5.1 U	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U	
ETHYLBENZENE	40000	5.1 R	5.5 U	5.55 U	5.6 U	5.1 U	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U	
M+P-XYLENES	400000 [2]						5.2 UJ								
TOLUENE	30000	5.1 R	5.5 U	2.12 J	1.5 J	3.7 J	5.2 UJ		5.4 U	5.5 U	250 U		1.6 J	6.1 U	
TOTAL XYLENES	400000 [2]	5.1 R	5.5 U	5.55 U	5.6 U	5.1 U	5.2 UJ		5.4 U	5.5 U	250 U		6 U	6.1 U	
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000														
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000														
C9-C12 ALIPHATICS	1000000														
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]						5.2 UJ								
TOTAL XYLENES	400000 [2]						5.2 UJ								
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700	350 U	310 J	295 J	280 J	180 J	300 U		550	**720**	370 U		360 U	**760**	
ACENAPHTHENE	4000	350 U	350 U	355 U	360 U	360 U	300 U		120 J	590	370 U		360 U	360 J	
ACENAPHTHYLENE	1000	350 U	350 U	355 U	360 U	360 U	300 U		130 J	110 J	370 U		360 U	180 J	
ANTHRACENE	1000000	350 U	350 U	134 J	93 J	88 J	300 U		290 J	3000	370 U		96 J	660	
BAP EQUIVALENT-HALFND	2000	1800 U	311 J	602 J	893 J	224 J	300 U		**3530 J**	1220 J	2.2 UJ		328 J	1560 J	
BAP EQUIVALENT-POS	2000	1800 U	311 J	602 J	893 J	224 J	300 U		**3530 J**	1220 J	2.2 UJ		328 J	1560 J	
BENZO(A)ANTHRACENE	7000	350 UJ	270 J	350 J	430	280 J	300 U		2900 J	3500 J	370 UJ		350 J	2700 J	
BENZO(A)PYRENE	2000	1800 U	160 J	385 J	610 J	100 J	300 U		**2600 J**	540 J	2.2 UJ		190 J	750 J	
BENZO(B)FLUORANTHENE	7000	350 UJ	630	815	1000	500	300 U		2900 J	2000 J	370 UJ		560 J	2800 J	
BENZO(G,H,I)PERYLENE	1000000	350 UJ	270 J	335 J	400	260 J	300 U		2200 J	570 J	370 UJ		270 J	1400 J	
BENZO(K)FLUORANTHENE	70000	350 UJ	150 J	190 J	230 J	150 J	300 U		2500 J	1700 J	370 UJ		130 J	2800 J	
BIS(2-ETHYLHEXYL)PHTHALATE	200000	350 UJ	170 J	145 J	120 J	360 UJ	300 U		140 J	170 J	370 UJ		140 J	320 J	
BUTYL BENZYL PHTHALATE	NC	350 UJ	140 J	160 J	360 U	360 UJ	300 U		350 U	350 UJ	370 UJ		360 UJ	93 J	
CARBAZOLE	NC	350 U	350 U	355 U	360 U	360 UJ	300 U		260 J	210 J	370 U		360 U	540	
CHRYSENE	70000	350 UJ	630	695	760	470 J	300 U		3800 J	4400 J	370 UJ		370 J	3300 J	
DIBENZO(A,H)ANTHRACENE	700	2.1 U	31 J	59.5 J	88 J	13 J	300 U		100 J	52 J	2.2 U		19 J	87 J	
DIBENZOFURAN	NC	350 U	200 J	180 J	160 J	120 J	300 U		360	720	370 U		360 U	810	
DI-N-BUTYL PHTHALATE	NC	350 U	350 U	355 U	360 U	360 UJ	300 U		350 U	350 U	370 U		360 U	360 U	
FLUORANTHENE	1000000	350 U	450	580	710	600 J	300 U		7000 J	12000	370 U		620	6200	
FLUORENE	1000000	350 U	350 U	355 U	360 U	360 U	300 U		150 J	590	370 U		360 U	360	
INDENO(1,2,3-CD)PYRENE	7000	350 UJ	280 J	385 J	490	310 J	300 U		2200 J	560 J	370 UJ		260 J	1400 J	
NAPHTHALENE	4000	350 U	280 J	300 J	320 J	250 J	300 U		540	550	370 U		360 U	900	
PHENANTHRENE	10000	350 U	500	570	640	510 J	300 U		5900 J	6000	370 U		550	3900	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU37	EU37	EU37	EU37	EU37	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39
LOCATION ID		MW06-013	SB06-008	SB06-008	SB06-008	SB06-009	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020
SAMPLE ID		MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE		19981124	19981208	19981208	19981208	19981208	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	2	1	1	1
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000	350 U	170 J	175 J	360 U	360 U	300 U		350 U	350 U	370 U		360 U	360 U	
PYRENE	1000000	350 UJ	470	635	800	450 J	300 U		6200 J	11000 J	370 UJ		1100 J	8000 J	
TOTAL PAHS	NC	415 UJ	4430 J	5640 J	6850 J	4160 J	300 U		40100 J	47900 J	327 UJ		4520 J	36600 J	
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000	3.5 U	3.5 U	3.22 J	4.7 J	3.6 U	2 U		6.7 J	6 J	3.7 U		8.5 J	12 J	
4,4'-DDE	3000	3.5 U	5 J	7.45 J	9.9 J	3.7 J	2 U		13	9.7	3.7 U		3.8	24	
4,4'-DDT	3000	3.5 U	23 J	24.5 J	26 J	17 J	2 U		43 J	24 J	3.7 U		11 J	35 J	
ALDRIN	40	1.7 U	2.7 J	1.8 J	1.8 U	2.6 J	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U	
ALPHA-CHLORDANE	700 [3]	1.7 U	1.7 U	1.75 U	1.8 U	1.8 U	2.6 R		3.5 J	1.7 U	1.8 U		1.8 U	1.8 U	
AROCLOR-1260	2000 [4]	35 U	35 U	35.5 U	36 U	36 U	31 U		35 U	35 U	37 U		36 U	36 U	
DIELDRIN	50	3.5 U	3.5 U	3.55 U	3.6 U	3.6 U	2 U		3.5 U	3.5 U	3.7 U		22 J	3.6 U	
ENDOSULFAN II	500 [5]	3.5 U	3.5 U	3.55 U	3.6 U	3.6 U	2 U		3.5 U	9 J	3.7 U		3.6 U	4.8 J	
ENDOSULFAN SULFATE	500 [5]	3.5 U	3.5 U	3.55 U	3.6 U	3.6 U	2 U		5 J	12 J	3.7 U		3.6 U	4.2 J	
ENDRIN	8000	3.5 U	3.5 U	3.55 U	3.6 U	3.6 U	2 U		3.5 U	3.5 U	3.7 U		3.6 U	3.6 U	
ENDRIN ALDEHYDE	8000 [6]	3.5 U	3.5 U	2.78	3.8	3.6 U	3.7 R		3.5 U	4.3	3.7 U		3.6 U	7.6 J	
ENDRIN KETONE	8000 [6]	3.5 U	4.9 J	5.6 J	6.3 J	4.2	2 U		9.4 J	23	3.7 U		3.6 U	13	
GAMMA-CHLORDANE	700 [3]	1.7 U	1.7 U	1.75 U	1.8 U	1.8 U	0.99 U		2.3 J	1.7 U	1.8 U		1.8 U	1.8 U	
HEPTACHLOR	200	1.7 U	1.7 U	1.75 U	1.8 U	1.8 U	0.99 U		1.7 U	1.7 U	1.8 U		1.8 U	1.8 U	
HEPTACHLOR EPOXIDE	90	1.7 U	9.6 J	8.7 J	7.8 J	12 J	0.99 U		13 J	26 J	1.8 U		2.7 J	21 J	
METHOXYCHLOR	200000	17 U	17 U	13.8 J	19 J	18 U	9.9 U		26 J	58 J	18 U		18 U	30 J	
TOTAL AROCLOR	2000 [4]	40 U	40 U	40.6 U	41.1 U	41.1 U	31 U		39.9 U	39.9 U	42.1 U		41.1 U	41.1 U	
METALS (MG/KG)															
ALUMINUM	NC	7380 J	6960 J	6620 J	6280 J	4470 J	5900		5230 J	5680 J	8950 J		5230 J	8890 J	
ANTIMONY	20	0.2 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.23 UJ	0.72 U		0.19 UJ	0.2 UJ	0.18 UJ		0.2 UJ	1.4 UJ	
ARSENIC	20	4.4 J	3.1	3.85	4.6	0.81 J	11 J		10.4	7.3	2.8		1.7	8.1	
BARIUM	1000	20.2 J	24.3	22.8	21.2	15.9	13 J		22.4	22.2	15.8 J		19	123	
BERYLLIUM	100	0.67	0.38 J	0.39 J	0.4 J	0.28 J	0.4 J		0.45 J	0.37 J	0.8		0.4 J	0.76	
CADMIUM	2	0.23 UJ	**4**	**2.75**	1.5	0.27 U	0.33 J		0.22 U	0.25 J	0.21 U		0.23 U	0.32 J	
CALCIUM	NC	899	1620	1330	1040	2740	240 U		1140	1110	676 J		1550	2570	
CHROMIUM	30 [7]	10.6	11.8	11.1	10.4	7.6	9.5		12.3	10.9	9.2 J		6.8	**149**	
COBALT	NC	3.6	3.8	3.55	3.3	4	2.7 J		3.6	3.6	3.4		2.4 J	5.9	
COPPER	NC	12.2 J	13.6	14.2	14.8	5.6	36		11.8	9.3	17		6.5	18.2	
IRON	NC	14700	12100	11600	11100	6660	10000		12200	9970	13400 J		8310	16100	
LEAD	300	8.5 J	62.9	60.2	57.5	11.7	7.8		141	75.6	7.7 J		32.1	**1280**	**550**
MAGNESIUM	NC	2430 J	1880	1800	1730	1380 J	1200		1850	1760	2050 J		1240	2320	
MANGANESE	NC	150 J	127	135	143	92.5 J	66		180	138	157 J		132	207	
MERCURY	20	0.05 UJ	0.11 UJ	0.1 UJ	0.09 UJ	0.07 UJ	0.036 J		0.09 UJ	0.09 UJ	0.07 UJ		0.08 UJ	0.05 UJ	
NICKEL	20	9	10.4	9.25	8.1	6.6	5.5 J		9.2	8.8	6.6		5.9	14.6	
POTASSIUM	NC	384	401	372	344	314	170 U		292	321	237		283	602	
SELENIUM	400	0.61 J	0.68 J	0.415 J	0.3 U	0.37 U	2.6 J		0.33 J	0.32 U	0.82 J		0.32 U	0.52 J	
SILVER	100	0.26 UJ	0.26 UJ	0.255 UJ	0.25 UJ	0.31 U	0.14 R		0.25 UJ	0.27 UJ	0.24 UJ		0.27 UJ	0.23 UJ	

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU37	EU37	EU37	EU37	EU37	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39
LOCATION ID		MW06-013	SB06-008	SB06-008	SB06-008	SB06-009	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020
SAMPLE ID		MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE		19981124	19981208	19981208	19981208	19981208	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	2	1	1	1
SODIUM	NC	73.9	92.2	77.8	63.3	53.1 U	73 U		54	50.2 U	53.5		41.7 U	235	
METALS CONTINUED (MG/KG)															
THALLIUM	8	0.32 U	0.32 U	0.315 U	0.31 U	0.37 U	0.72 UJ		0.3 U	0.33 U	0.29 U		0.33 U	0.28 U	
VANADIUM	600	14.9 J	34.2	29.9	25.6	13.9 J	12		27.9	24.1	16.6 J		16.1	45.2	
ZINC	2500	35.5 J	42.6	37.6	32.6	33.9	21		46.2	41.3	28 J		55.6	150	
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100	0.21 U	0.22 U	0.22 U	0.22 U	0.22	1.2 U		0.21 U	0.22 U	0.23 U		0.23 U	0.22 U	
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000	20000 U	25000 J	23500 J	22000 J	23000 J			60000 J	34000 J	18000 U		23000 UJ	43000 J	
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000	15000	33000	33000	33000	42000			14000	26000	6600 U		43000	16000	
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000	8100 J	28000 J	32500 J	37000 J	9700 J			9000 J	8900 J	8200 J		8000 J	9800 J	
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC	34000 U	86000 J	89000 J	92000 J	74000 J			83000 J	69000 J	31000 U		74000 J	69000 J	
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC						1900	50.2				203			
1,2,3,4,6,7,8,9-OCDF	NC						47	0.986 U				24			
1,2,3,4,6,7,8-HPCDD	NC						220	1.04 J				21.2			
1,2,3,4,6,7,8-HPCDF	NC						40	0.404 J				17.5			
1,2,3,4,7,8,9-HPCDF	NC						2 U	0.986 U				0.952 J			
1,2,3,4,7,8-HXCDD	NC						2.4 U	0.493 U				0.408 J			
1,2,3,4,7,8-HXCDF	NC						4.1 J	0.247 U				3.92			
1,2,3,6,7,8-HXCDD	NC						9	0.493 U				1.3 J			
1,2,3,6,7,8-HXCDF	NC						2.8 U	0.247 U				4.06			
1,2,3,7,8,9-HXCDD	NC						4.1 J	0.493 U				0.937 J			
1,2,3,7,8,9-HXCDF	NC						0.8 U	0.986 U				1.09 J			
1,2,3,7,8-PECDD	NC						0.67 U	0.247 U				0.534 J			
1,2,3,7,8-PECDF	NC						1.1 U	0.493 U				0.87 J			
2,3,4,6,7,8-HXCDF	NC						2.1 U	0.247 U				8.9			
2,3,4,7,8-PECDF	NC						3.2 J	0.142 J				14.6			
2,3,7,8-TCDD	20						0.32 U	0.197 U				1.68			
2,3,7,8-TCDF	NC						7.1	0.194 UJ				1.15 UJ			
TEQ	20						6.57	0.0721 J				9.15 J			
TEQ HALFND	20						7.5	0.477 J				9.2 J			
TOTAL HPCDD	NC						440	2.54 J				46.2			
TOTAL HPCDF	NC						96	0.563 J				32.3 J			
TOTAL HXCDD	NC						59	0.493 U				11.7			
TOTAL HXCDF	NC						56	0.431 J				92.9			
TOTAL PECDD	NC						2.3 U	0.247 U				7.16 J			
TOTAL PECDF	NC						26	0.664 J				124 J			

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POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU37	EU37	EU37	EU37	EU37	EU37	EU38	EU38	EU38	EU38	EU39	EU39	EU39	EU39
LOCATION ID		MW06-013	SB06-008	SB06-008	SB06-008	SB06-009	SB06-351	IOA-SS-EU38	SB06-006	SB06-007	SB06-012	IOA-SS-EU39	SB06-004	SB06-005	SS06-020
SAMPLE ID		MW06013-NSO-112498-0	SB06008-NSO-120898-0	SB06008-NSO-120898-0-AVG	SB06008-NSO-120898-0-D	SB06009-NSO-120898-0	SB06-351-NSO-072503	IOA-SS-EU38-0002	SB06006-NSO-120898-0	SB06007-NSO-120898-0	SB06012-NSO-120998-0	IOA-SS-EU39-0002	SB06004-NSO-120898-0	SB06005-NSO-120898-0	SS06-020-NSO-102798
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG
SAMPLE DATE		19981124	19981208	19981208	19981208	19981208	20030725	20110809	19981208	19981208	19981209	20110809	19981208	19981208	19981027
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	2	1	1	1	2	1	1	1
TOTAL TCDD	NC						0.32 U	0.197 U				4.52 J			
TOTAL TCDF	NC						77	0.922 J				39 J			

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU39	EU39	EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID		SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID		SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981027	19981027	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	2	2	2	2	2	2	2	2	2	2	2	2
VOLATILES (UG/KG)															
2-BUTANONE	4000														
ACETONE	6000														
BENZENE	2000														
ETHYLBENZENE	40000														
M+P-XYLENES	400000 [2]														
TOLUENE	30000														
TOTAL XYLENES	400000 [2]														
VPH MADEP (UG/KG)															
C5-C8 ALIPHATICS	100000														
C5-C8 ALIPHATICS (WEIGHTED 0.5)	100000														
C5-C8 ALIPHATICS-UNADJ	100000														
C9-C10 AROMATICS	100000														
C9-C12 ALIPHATICS	1000000														
C9-C12 ALIPHATICS (WEIGHTED 0.05)	1000000														
O-XYLENE	400000 [2]														
TOTAL XYLENES	400000 [2]														
VOLATILE PETROLEUM HYDROCARBONS	NC														
SEMIVOLATILES (UG/KG)															
2-METHYLNAPHTHALENE	700			210 J	18 UJ	20 UJ	17 UJ	19 UJ	55 J	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
ACENAPHTHENE	4000			1400 J	10 J	20 UJ	17 UJ	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
ACENAPHTHYLENE	1000			59 J	18 UJ	8 J	38 J	19 UJ	110 J	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
ANTHRACENE	1000000			2200 J	24 J	10 J	38 J	9 J	190 J	8 J	8 J	8 J	19 UJ	19 UJ	19 UJ
BAP EQUIVALENT-HALFND	2000			**7970 J**	85.4 J	69.3 J	129 J	81 J	469 J	63.6 J	65.2 J	66.8 J	19 UJ	32.2 J	19 UJ
BAP EQUIVALENT-POS	2000			**7970 J**	65.1 J	47.3 J	112 J	60.1 J	354 J	43.8 J	45.4 J	47 J	19 UJ	2.21 J	19 UJ
BENZO(A)ANTHRACENE	7000			6300 J	67 J	38 J	85 J	34 J	290 J	33 J	32 J	31 J	19 UJ	10 J	19 UJ
BENZO(A)PYRENE	2000			**5600 J**	50 J	37 J	81 J	47 J	260 J	35 J	36.5 J	38 J	19 UJ	19 UJ	19 UJ
BENZO(B)FLUORANTHENE	7000			**7400 J**	80 J	62 J	160 J	93 J	620 J	53 J	54.5 J	56 J	19 UJ	12 J	19 UJ
BENZO(G,H,I)PERYLENE	1000000			2500 J	20 J	23 J	51 J	26 J	200 J	22 J	23 J	24 J	19 UJ	19 UJ	19 UJ
BENZO(K)FLUORANTHENE	70000			3200 J	32 J	26 J	67 J	33 J	210 J	20 J	22 J	24 J	19 UJ	19 UJ	19 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	200000														
BUTYL BENZYL PHTHALATE	NC														
CARBAZOLE	NC														
CHRYSENE	70000			6500 J	73 J	49 J	110 J	69 J	400 J	38 J	41 J	44 J	19 UJ	7 J	19 UJ
DIBENZO(A,H)ANTHRACENE	700			700 J	37 UJ	40 UJ	35 UJ	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ
DIBENZOFURAN	NC														
DI-N-BUTYL PHTHALATE	NC														
FLUORANTHENE	1000000			10000 J	160 J	81 J	200 J	100 J	570 J	68 J	63 J	58 J	19 UJ	14 J	19 UJ
FLUORENE	1000000			1200 J	18 UJ	20 UJ	10 J	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
INDENO(1,2,3-CD)PYRENE	7000			2600 J	37 UJ	40 UJ	55 J	38 UJ	210 UJ	36 UJ	36 UJ	36 UJ	38 UJ	37 UJ	37 UJ
NAPHTHALENE	4000			700 J	18 UJ	20 UJ	17 UJ	19 UJ	110 UJ	18 UJ	18 UJ	18 UJ	19 UJ	19 UJ	19 UJ
PHENANTHRENE	10000			8500 J	91 J	35 J	98 J	64 J	320 J	29 J	26 J	23 J	19 UJ	19 UJ	19 UJ

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU39	EU39	EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID		SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID		SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981027	19981027	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	2	2	2	2	2	2	2	2	2	2	2	2
SEMIVOLATILES (CONTINUED) (UG/KG)															
PHENOL	1000														
PYRENE	1000000			11000 J	140 J	69 J	160 J	98 J	610 J	59 J	58 J	57 J	19 UJ	15 J	19 UJ
TOTAL PAHS	NC			70100 J	747 J	438 J	1150 J	573 J	3840 J	365 J	364 J	363 J	21.2 UJ	58 J	21.1 UJ
PESTICIDES/PCBS (UG/KG)															
4,4'-DDD	4000														
4,4'-DDE	3000														
4,4'-DDT	3000														
ALDRIN	40														
ALPHA-CHLORDANE	700 [3]														
AROCLOR-1260	2000 [4]			46	7.4 U	8 U	710	7.6 U	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
DIELDRIN	50														
ENDOSULFAN II	500 [5]														
ENDOSULFAN SULFATE	500 [5]														
ENDRIN	8000														
ENDRIN ALDEHYDE	8000 [6]														
ENDRIN KETONE	8000 [6]														
GAMMA-CHLORDANE	700 [3]														
HEPTACHLOR	200														
HEPTACHLOR EPOXIDE	90														
METHOXYCHLOR	200000														
TOTAL AROCLOR	2000 [4]			46	7.4 U	8 U	710	7.6 U	61	5 J	4.28 J	7.1 U	7.6 U	8 J	7.4 U
METALS (MG/KG)															
ALUMINUM	NC			10000	9200	11000	7600	6800	8000	10000	10000	10000	7900	8500	6400
ANTIMONY	20			0.35	0.07 U	0.12 U	0.21	0.24 U	0.55	0.16 U	0.16 U	0.16 U	0.07 U	0.11 U	0.12 U
ARSENIC	20			5.3	0.75	2.3	2.1	1.7	7.2	1.4	1.35	1.3	1.3	3.4	**36**
BARIUM	1000			39	15	21	22	19	35	17	16.5	16	11	21	26
BERYLLIUM	100			0.4	0.27 U	0.39 J	0.43	0.58	0.36	0.53	0.405 J	0.28 J	0.27 J	0.45	0.56
CADMIUM	2			0.42	0.1 U	0.21	0.36	0.34	0.58	0.25	0.235	0.22	0.18	0.19	0.2
CALCIUM	NC			1400 J	750 J	610	1400	1000	1000	830	865	900	1700	1400	1200
CHROMIUM	30 [7]			15	10	9.3	11	7.9	14	11	10.3	9.6	16	9.9	7.9
COBALT	NC			3.5	2.6	3.7	4	4.9	3.8	3.1	2.9	2.7	6.3	5.2	4
COPPER	NC			15	3.4	6.9 J	10 J	11 J	25 J	5.7 J	5.25 J	4.8 J	7.9 J	8.7 J	6 J
IRON	NC			16000	11000	19000	16000	14000	14000	13000	12000	11000	11000	20000	45000
LEAD	300	**503**	**456**	100 J	7.1 J	16	35	20	**320**	33	28.5	24	10	8.1	16
MAGNESIUM	NC			1900 J	2000 J	2000	2200	2400	1900	2100	2000	1900	4900	2800	1700
MANGANESE	NC			210 J	130 J	240 J	310 J	390 J	220 J	160 J	145 J	130 J	220 J	310 J	280 J
MERCURY	20			0.15	0.011 J	0.017 J	0.012 J	0.007 J	0.06	0.044	0.038	0.032	0.002 J	0.001 J	0.002 J
NICKEL	20			9.2	6.5	7.2	7.7	8.8	8.9	7.6	7.35	7.1	14	9.3	6.1
POTASSIUM	NC			290	320	380 J	620 J	400 J	340 J	320 J	315 J	310 J	300 J	420 J	330 J
SELENIUM	400			0.96	0.6 J	0.42 J	0.31 J	0.3 J	0.38 J	0.38 J	0.34 J	0.3 J	0.59 U	0.6 U	0.64 U
SILVER	100			0.39	0.078 U	0.095 J	0.079 U	0.08 U	0.076 J	0.094 U	0.096 U	0.098 U	0.091 U	0.077 U	0.075 U

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU39	EU39	EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID		SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID		SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981027	19981027	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	2	2	2	2	2	2	2	2	2	2	2	2
SODIUM	NC			58 J	51 J	45 J	77	58 J	43 J	45 J	52 J	59 J	85	80 J	120
METALS CONTINUED (MG/KG)															
THALLIUM	8			0.083 U	0.075 U	0.1 U	0.066 U	0.077 U	0.092 U	0.077 U	0.0755 U	0.074 U	0.079 U	0.081 U	0.085 U
VANADIUM	600			25	16	20	21	15	25	17	16.5	16	17	15	18
ZINC	2500			78	23	38	44	58	81	40	38.5	37	40	36	29
MISCELLANEOUS PARAMETERS (MG/KG)															
CYANIDE	100														
EPH MADEP (UG/KG)															
C11-C22 AROMATICS	1000000														
C11-C22 AROMATICS (WEIGHTED 1.0)	1000000														
C11-C22 AROMATICS-UNADJ	1000000														
C19-C36 ALIPHATICS	3000000														
C19-C36 ALIPHATICS (WEIGHTED 0.005)	3000000														
C9-C18 ALIPHATICS	1000000														
C9-C18 ALIPHATICS (WEIGHTED 0.05)	1000000														
EXTRACTABLE PETROLEUM HYDROCARBONS	NC														
DIOXINS/FURANS (NG/KG)															
1,2,3,4,6,7,8,9-OCDD	NC						4610			768	700	633			
1,2,3,4,6,7,8,9-OCDF	NC						20.3			6.39	6.16	5.94			
1,2,3,4,6,7,8-HPCDD	NC						270			31	26.6	22.2			
1,2,3,4,6,7,8-HPCDF	NC						30.6			3.96	3.63	3.3			
1,2,3,4,7,8,9-HPCDF	NC						2.27 J			0.99 U	0.989 U	0.988 U			
1,2,3,4,7,8-HXCDD	NC						2.23 J			0.349 J	0.278 J	0.206 J			
1,2,3,4,7,8-HXCDF	NC						4.46			0.744 J	0.726 J	0.709 J			
1,2,3,6,7,8-HXCDD	NC						5.83			0.814 J	0.67 J	0.525 J			
1,2,3,6,7,8-HXCDF	NC						3.71			1.06 J	0.903 J	0.746 J			
1,2,3,7,8,9-HXCDD	NC						4.18			0.791 J	0.596 J	0.4 J			
1,2,3,7,8,9-HXCDF	NC						0.918 J			0.366 J	0.43 J	0.988 U			
1,2,3,7,8-PECDD	NC						4.1 J			0.318 J	0.221 J	0.247 U			
1,2,3,7,8-PECDF	NC						1.53 J			0.353 J	0.3 J	0.494 U			
2,3,4,6,7,8-HXCDF	NC						7.59			2.31 J	2 J	1.69 J			
2,3,4,7,8-PECDF	NC						10.6			3.58	2.89 J	2.2 J			
2,3,7,8-TCDD	20						0.277 U			0.492 J	0.296 J	0.198 U			
2,3,7,8-TCDF	NC						4.15			0.428 UJ	0.446 UJ	0.464 UJ			
TEQ	20						15.1 J			3.12 J	2.32 J	1.53 J			
TEQ HALFND	20						15.2 J			3.15 J	2.5 J	1.84 J			
TOTAL HPCDD	NC						827			73.2	62.2	51.2			
TOTAL HPCDF	NC						77.4			9.82	8.99	8.16			
TOTAL HXCDD	NC						67.4			7.67 J	5.8 J	3.92 J			
TOTAL HXCDF	NC						88.3 J			24 J	20 J	15.9 J			
TOTAL PECDD	NC						15.4			2.77 J	1.66 J	0.54 J			
TOTAL PECDF	NC						104 J			34.1 J	28.2 J	22.4			

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU		EU39	EU39	EU40	EU41	EU42	EU43	EU44	EU45	EU46	EU46	EU46	EU47	EU48	EU49
LOCATION ID		SS06-020	SS06-020	IOA-SS-EU40	IOA-SS-EU41	IOA-SS-EU42	IOA-SS-EU43	IOA-SS-EU44	IOA-SS-EU45	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU46	IOA-SS-EU47	IOA-SS-EU48	IOA-SS-EU49
SAMPLE ID		SS06-020-NSO-102798-AVG	SS06-020-NSO-102798-D	IOA-SS-EU40-0002	IOA-SS-EU41-0002	IOA-SS-EU42-0002	IOA-SS-EU43-0002	IOA-SS-EU44-0002	IOA-SS-EU45-0002	IOA-SS-EU46-0002	IOA-SS-EU46-0002-AVG	IOA-SS-EU46-0002-D	IOA-SS-EU47-0002	IOA-SS-EU48-0002	IOA-SS-EU49-0002
MATRIX	**MCP S-1/GW-1 Standards[1]**	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
SAMPLE DATE		19981027	19981027	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810	20110810
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	2	2	2	2	2	2	2	2	2	2	2	2
TOTAL TCDD	NC						0.885 J			0.901 J	0.5 J	0.198 U			
TOTAL TCDF	NC						33.4 J			8.15 J	7.02 J	5.88 J			

TABLE E.2
POSITIVE DETECTIONS IN SURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

Footnotes:

1 - MassDEP MCP Method 1: Soil Category S-1 Standards. S-1 (Soil) & GW-1 (Groundwater). 310 CMR 40.0000, 12/14/2007.
2 - The value is for xylenes.
3 - The value is for chlordane.
4 - The value is for polchlorinated biphenyls.
5 - The value for endosulfan is used as a surrogate for endosulfan II.
6 - The value for endrin is used as a surrogate for endrin aldehyde and endrin ketone.
7 - The value is for hexavalent chromium.

Shaded sample results indicate that the detected concentrations exceed the screening criterion.

TABLE E.3
POSITIVE DETECTIONS IN SUBSURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	**MCP S-1/GW-1 Standards[1]**	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID		IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID		IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
SUBMATRIX		SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB
TOP DEPTH		5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH		7	5	5	5	7	7	7	8	8	8	8
VOLATILES (UG/KG)												
1,1,1-TRICHLOROETHANE	30000	0.41 U	0.36 U	0.39 U	4 J	0.48 U	0.445 U	0.41 U				
1,1-DICHLOROETHANE	400	0.41 U	0.36 U	0.39 U	3 J	0.48 U	0.445 U	0.41 U				
TRICHLOROETHENE	300	0.41 U	0.36 U	0.39 U	7 J	0.48 U	0.445 U	0.41 U				
SEMIVOLATILES (UG/KG)												
2-METHYLNAPHTHALENE	700	19 J	17 UJ	17 UJ	33 J	7 J	7.75 J	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
ACENAPHTHENE	4000	73 J	17 UJ	17 UJ	19 J	17 UJ	17 UJ	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
ACENAPHTHYLENE	1000	55 J	17 UJ	17 UJ	17 UJ	15 J	13 J	11 J	19 UJ	20 UJ	18 UJ	19 UJ
ANTHRACENE	1000000	150 J	17 UJ	17 UJ	41 J	39 J	34 J	29 J	19 UJ	20 UJ	18 UJ	19 UJ
BAP EQUIVALENT-HALFND	2000	584 J	30.6 J	17 UJ	244 J	152 J	136 J	121 J	19 UJ	20 UJ	18 UJ	19 UJ
BAP EQUIVALENT-POS	2000	584 J	11.8 J	17 UJ	231 J	135 J	120 J	104 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(A)ANTHRACENE	7000	520 J	15 J	17 UJ	220 J	140 J	125 J	110 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(A)PYRENE	2000	380 J	9 J	17 UJ	170 J	98 J	86.5 J	75 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(B)FLUORANTHENE	7000	650 J	13 J	17 UJ	290 J	170 J	150 J	130 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(G,H,I)PERYLENE	1000000	230 J	17 UJ	17 UJ	92 J	60 J	53.5 J	47 J	19 UJ	20 UJ	18 UJ	19 UJ
BENZO(K)FLUORANTHENE	70000	250 J	10 UJ	17 UJ	100 J	78 J	65 J	52 J	19 UJ	20 UJ	18 UJ	19 UJ
CHRYSENE	70000	550 J	13 J	17 UJ	240 J	140 J	120 J	100 J	19 UJ	20 UJ	18 UJ	19 UJ
DIBENZO(A,H)ANTHRACENE	700	64 J	34 UJ	34 UJ	26 UJ	35 UJ	35 UJ	35 UJ	37 UJ	40 UJ	36 UJ	37 UJ
FLUORANTHENE	1000000	870 J	24 J	17 UJ	340 J	240 J	220 J	200 J	19 UJ	20 UJ	18 UJ	19 UJ
FLUORENE	1000000	89 J	17 UJ	17 UJ	17 J	16 J	13.5 J	11 J	19 UJ	20 UJ	18 UJ	19 UJ
INDENO(1,2,3-CD)PYRENE	7000	200 J	34 UJ	34 UJ	86 J	49 J	44.5 J	40 J	37 UJ	40 UJ	36 UJ	37 UJ
NAPHTHALENE	4000	33 J	17 UJ	17 UJ	11 J	12 J	10.2 J	17 UJ	19 UJ	20 UJ	18 UJ	19 UJ
PHENANTHRENE	10000	610 J	11 J	17 UJ	190 J	150 J	135 J	120 J	19 UJ	20 UJ	18 UJ	19 UJ
PYRENE	1000000	910 J	20 J	17 UJ	370 J	210 J	185 J	160 J	19 UJ	20 UJ	18 UJ	19 UJ
TOTAL PAHS	NC	5650 J	105 J	19 UJ	2220 J	1420 J	1250 J	1080 J	21.1 UJ	22.4 UJ	20.1 UJ	21.1 UJ
METALS (MG/KG)												
ALUMINUM	NC	7300	6800	7300	6700	7900	7450	7000	3600	4200	4600	4400
ANTIMONY	20	0.3	0.083 U	0.056 U	0.13 U	0.53	0.49	0.45	0.066 U	0.094 U	0.069 U	0.065 U
ARSENIC	20	1.9	1.7	1.7	2.3	1.5	1.5	1.5	0.22 J	0.18 J	0.57	0.13 J
BARIUM	1000	16	13	12	17	15	14.5	14	7.8	11	9.8	9.5
BERYLLIUM	100	0.37	0.4	0.54	0.52	0.38	0.4	0.42	0.17 U	0.26 J	0.27	0.26 U
CADMIUM	2	0.19	0.18	0.19	0.28	0.18 J	0.19 J	0.2	0.083 U	0.15	0.14	0.11 U
CALCIUM	NC	1500	1000	1100	1700	1100	1100	1100	820	1300	1000	1100
CHROMIUM	30 [2]	10	11	9.7	8.9	9.2	8.25	7.3	4.7	6.3	6.2	5.5

TABLE E.3
POSITIVE DETECTIONS IN SUBSURFACE SOIL COMPARED TO MCP CRITERIA
INDUSTRIAL OPERATIONS AREA
NAS SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

OU	**MCP S-1/GW-1 Standards[1]**	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA33	RIA82	RIA82	RIA82	RIA82
LOCATION ID		IOA-RIA33-SB02	IOA-RIA33-SB04	IOA-RIA33-SB08	IOA-RIA33-SB10	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA33-SB14	IOA-RIA82-SB01A	IOA-RIA82-SB02A	IOA-RIA82-SB03A	IOA-RIA82-SB04A
SAMPLE ID		IOA-SO-RIA33-SB02-0507	IOA-SO-RIA33-SB04-0305	IOA-SO-RIA33-SB08-0305	IOA-SO-RIA33-SB10-0305	IOA-SO-RIA33-SB14-0507	IOA-SO-RIA33-SB14-0507-AVG	IOA-SO-RIA33-SB14-0507-D	IOA-SO-RIA82-01A-0608	IOA-SO-RIA82-02A-0608	IOA-SO-RIA82-03A-0608	IOA-SO-RIA82-04A-0608
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE DATE		20110815	20110815	20110815	20110815	20110815	20110815	20110815	20110809	20110811	20110811	20110811
SUBMATRIX		SB	SB	SB	SB	SB	SB	SB	SB	SB	SB	SB
TOP DEPTH		5	3	3	3	5	5	5	6	6	6	6
BOTTOM DEPTH		7	5	5	5	7	7	7	8	8	8	8
COBALT	NC	4.3	4.7	3.9	4.7	6.8	6.7	6.6	1.9	2.3	2.6	2.6
COPPER	NC	9.6	9.7	9.4	12	9	8.65	8.3	3.6	4.6	6.1	6.5
IRON	NC	13000	14000	18000	11000	14000	14000	14000	4900	6000	7100	6000
LEAD	300	20	6.6	6.5	16	8.1	7.8	7.5	2.6	3.6	3.5	3.5
MAGNESIUM	NC	2100	2400	2300	2000	2400	2300	2200	1100	1300	1600	1400
MANGANESE	NC	240 J	170 J	310 J	180 J	320 J	320 J	320 J	65 J	90 J	92 J	82 J
MERCURY	20	0.018 J	0.0022 J	0.002 J	0.012 J	0.0077 J	0.0081 J	0.0085 J	0.01 U	0.013 U	0.011 U	0.01 U
NICKEL	20	8.5	7.8	7.8	8.9	8.9	8	7.1	3.8	4.5	5.1	5
POTASSIUM	NC	290 J	440 J	360 J	360 J	360 J	380 J	400 J	250 J	310 J	310 J	270 J
SODIUM	NC	57 J	50 J	52 J	58 J	46 J	46.5 J	47 J	36 J	51 J	41 J	43 J
THALLIUM	8	0.087 U	0.087 U	0.074 U	0.09 J	0.09 U	0.082 U	0.074 U	0.083 U	0.074 U	0.065 U	0.091 U
VANADIUM	600	20	15	16	15	15	14.5	14	8.5	11	12	9.2
ZINC	2500	42	38	40	40	33	34.5	36	17	19	26	23

Notes:
1 - MassDEP MCP Method 1: Soil Category S-1 Standards. S-1 (Soil) & GW-1 (Groundwater). 310 CMR 40.0000, 12/14/2007.
2 - The value is for hexavalent chromium.

Shaded sample results indicate that the detected concentrations exceed the screening criterion (no exceedances were noted for subsurface soil).

APPENDIX F

PRG CALCULATIONS

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL

SITE NAME: FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
EXPOSURE POINT: INDUSTRIAL OPERATIONS AREA
EXPOSURE SCENARIO: ADULT RESIDENTS
MEDIA: SURFACE SOIL
DATE: MARCH 15, 2013

THIS SPREADSHEET CALCULATES SCREENING LEVELS FOR EXPOSURES TO SOIL
VIA INCIDENTAL INGESTION, DERMAL CONTACT, AND INHALATION

RELEVANT EQUATIONS:

Carcinogens

$$PRG_{soil} = \frac{TCR}{Intake_{oral} \times CSF_{oral} + Intake_{derm} \times CSF_{derm} + EC_{air} \times IUR}$$

Mutagenic

$$PRG_{soil} = \frac{TCR}{Intake_{ages\ 6\text{-}16} \times ADAF_{ages\ 6\text{-}16} + Intake_{ages\ >\ 16} \times ADAF_{ages\ >\ 16}}$$

Noncarcinogens

$$RBC_{soil} = \frac{THI}{\left(\frac{Intake_{oral}}{RfD_{oral}}\right) + \left(\frac{Intake_{derm}}{RfD_{derm}}\right) + \left(\frac{EC_{air}}{RfC}\right)}$$

$$Intake_{oral} = \frac{IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

$$Intake_{derm} = \frac{SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$$

$$EC_{air} = \frac{ET \times EF \times ED \times [1/PEF + 1/VF]}{AT \times 24\ hours/day}$$

INPUT ASSUMPTIONS:

	Parameter	Adult Ages 6 - 16	Adult Ages > 16	Definition
General	TCR = :	1E-06		Target Cancer Risk
	THI = :	1		Target Hazard Index
	EF = :	350	350	Exposure Frequency (days/year)
	ED =:	10	14	Exposure Duration (years)
	BW = :	70	70	Body Weight (kg)
	ATc = :	25,550		Averaging time for carcinogenic exposures (days)
	ATn = :	3,650	5,110	Averaging time for noncarcinogenic exposures (days)
	CF = :	1.0E-06		Conversion Factor (kg/mg)
	ADAF = :	Chemical Specific		Age Dependent Adjustment Factor
Incidental Ingestion	IR = :	100	100	Soil Ingestion Rate (mg/day)
	FI = :	1	1	Fraction from contaminated source (unitless)
Dermal Contact	SA = :	5,700	5,700	Skin surface available for contact (cm^2/day)
	AFc = :	0.07	0.07	Soil to skin adherence factor (mg/cm^2)
	ABS = :	Chemical Specific		Absorption factor (unitless)
Inhalation	ETc = :	24	24	Exposure time (hours/day)
	PEF = :	1.10E+10		Particulate emission factor (m^3/kg)
	VF = :	Chemical Specific		Volatilization factor (m^3/kg)

CHEMICAL	ABS	Cancer Slope Factor			Reference Dose			ADAF	
		Oral $(mg/kg/day)^{-1}$	Dermal $(mg/kg/day)^{-1}$	Inhalation $(ug/m^3)^{-1}$	Oral (mg/kg/day)	Dermal (mg/kg/day)	Inhalation (mg/m^3)	Ages 6 - 16	Ages >16
Benzo(a)anthracene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	3	1
Benzo(a)pyrene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA	3	1
Benzo(b)fluoranthene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	3	1
Benzo(k)fluoranthene	0.13	7.3E-02	7.3E-02	1.1E-04	NA	NA	NA	3	1
Dibenzo(a,h)anthracene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA	3	1
Indeno(1,2,3-cd)pyrene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	3	1
Aroclor-1260	0.14	2.0E+00	2.0E+00	5.7E-04	2.0E-05	2.0E-05	NA	1	1
Arsenic	0.03	1.5E+00	1.5E+00	4.3E-03	3.0E-04	3.0E-04	1.5E-05	1	1
Chromium VI	0	5.0E-01	2.0E+01	8.4E-02	3.0E-03	7.5E-05	1.0E-04	3	1

CHEMICAL	Carcinogenic Intake Factors			Noncarcinogenic Intake Factors		
	Oral (mg/kg/day)	Dermal (mg/kg/day)	Inhalation (mg/m^3)	Oral (mg/kg/day)	Dermal (mg/kg/day)	Inhalation (mg/m^3)
Benzo(a)anthracene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Benzo(a)pyrene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Benzo(b)fluoranthene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Benzo(k)fluoranthene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Dibenzo(a,h)anthracene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Indeno(1,2,3-cd)pyrene	8.61E-07	4.47E-07	5.48E-11	1.37E-06	7.11E-07	8.72E-11
Aroclor-1260	4.70E-07	2.62E-07	2.99E-11	1.37E-06	7.65E-07	8.72E-11
Arsenic	4.70E-07	5.62E-08	2.99E-11	1.37E-06	1.64E-07	8.72E-11
Chromium VI	8.61E-07	0.00E+00	5.48E-11	1.37E-06	0.00E+00	8.72E-11

CHEMICAL	Soil Concentration	
	Carcinogenic (mg/kg)	Noncarcinogenic (mg/kg)
Benzo(a)anthracene	1.0	NA
Benzo(a)pyrene	0.10	NA
Benzo(b)fluoranthene	1.0	NA
Benzo(k)fluoranthene	10	NA
Dibenzo(a,h)anthracene	0.10	NA
Indeno(1,2,3-cd)pyrene	1.0	NA
Aroclor-1260	0.7	9.4
Arsenic	1.3	195
Chromium VI	2.3	2186

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE TWO OF TWO

CALCULATION OF AMBIENT AIR CONCENTRATION
SOURCE: U.S. EPA SOIL SCREENING GUIDANCE

Purpose: To calculate ambient air concentrations resulting from fugitive dust and volatilization from soil.

Relevant Equations:

$$Cair = Cs \times (1/PEF + 1/VF)$$

$$VF = \frac{Q/C \times (3.14 \times DA \times T)^{1/2} \times 10^{-4}\ m^2/cm^2}{2 \times pb \times DA} \qquad PEF = \frac{3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

$$DA = \frac{[(\theta a^{10/3} \times Di \times H + \theta w^{10/3} \times Dw)/n^2)]}{pb \times Kd + \theta w + \theta a \times H}$$

$$Csat = S/pb \times (Kd \times pb + \theta w + H \times \theta a)$$

INPUT PARAMTERS		
Parameter	**Value**	**Definition**
Q/C = :	73.95045	Inverse of mean conc. at center of source (g/m^2-s per kg/m^3).
T = :	9.5E+08	Exposure interval (seconds).
pb = :	1.5	Dry soil bulk density (g/cm^3).
ps = :	2.65	soil particle density (g/cm^3).
n = :	0.434	Total soil porosity (L_{pore}/L_{soil}).
θw = :	0.15	Water-filled soil porosity (L_{pore}/L_{soil}).
θa = :	0.284	Air-filled soil porosity (L_{air}/L_{soil}).
Di = :	Chemical specific	Diffusivity in air (cm^2/sec).
H' = :	Chemical specific	Dimensionless Henry's Law Constant.
Dw = :	Chemical specific	Diffusivity in water (cm^2/sec).
DA = :	Chemical specific	Apparent diffusivity (cm^2/sec).
Kd = :	Chemical specific	Soil-water partition coefficient (cm^3/g).
Koc = :	Chemical specific	Soil organic carbon partition coefficient (cm^3/g).
foc = :	0.006	Fraction organic carbon in soil (g/g).

Chemical	**Volatile**	**Chemical Properties**					**Intermediate Calculations**			
		Koc (cm^3/g)	**Di (cm^2/sec)**	**Dw (cm^2/sec)**	**S (mg/L)**	**H'**	**Kd (cm^3/g)**	**Da (cm^2/sec)**	**VF (m^3/kg)**	**Csat (mg/kg)**
Surface Soil										
Benzo(a)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(a)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(b)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(k)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Dibenzo(a,h)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Indeno(1,2,3-cd)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Aroclor-1260	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Arsenic	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Chromium VI	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE ONE OF TWO)

SITE NAME: FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
EXPOSURE POINT: INDUSTRIAL OPERATIONS AREA
EXPOSURE SCENARIO: CHILD RESIDENTS
MEDIA: SURFACE SOIL
DATE: MARCH 15, 2013

THIS SPREADSHEET CALCULATES SCREENING LEVELS FOR EXPOSURES TO SOIL
VIA INCIDENTAL INGESTION, DERMAL CONTACT, AND INHALATION

RELEVANT EQUATIONS:

Carcinogens

$$PRG_{soil} = \frac{TCR}{Intake_{oral} \times CSF_{oral} + Intake_{derm} \times CSF_{derm} + EC_{air} \times IUR}$$

Mutagenic

$$PRG_{soil} = \frac{TCR}{Intake_{ages\ 0\text{-}2} \times ADAF_{ages\ 0\text{-}2} + Intake_{ages\ 2\text{-}6} \times ADAF_{ages\ 2\text{-}6}}$$

Noncarcinogens

$$PRG_{soil} = \frac{THI}{\left(\frac{Intake_{oral}}{RfD_{oral}}\right) + \left(\frac{Intake_{derm}}{RfD_{derm}}\right) + \left(\frac{EC_{air}}{RfC}\right)}$$

$$Intake_{oral} = \frac{IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

$$Intake_{derm} = \frac{SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$$

$$EC_{air} = \frac{ET \times EF \times ED \times [1/PEF + 1/VF]}{AT \times 24\ hours/day}$$

INPUT ASSUMPTIONS:				
	Parameter	**Child Ages 0 - 2**	**Child Ages 2 - 6**	**Definition**
General	TCR = :	1E-06		Target Cancer Risk
	THI = :	1		Target Hazard Index
	EF = :	350	350	Exposure Frequency (days/year)
	ED =:	2	4	Exposure Duration (years)
	BW = :	15	15	Body Weight (kg)
	ATc = :	25,550		Averaging time for carcinogenic exposures (days)
	ATn = :	730	1,460	Averaging time for noncarcinogenic exposures (days)
	CF = :	1.0E-06		Conversion Factor (kg/mg)
	ADAF = :	Chemical Specific		Age Dependent Adjustment Factor
Incidental Ingestion	IR = :	200	200	Soil Ingestion Rate (mg/day)
	FI = :	1	1	Fraction from contaminated source (unitless)
Dermal Contact	SA = :	2,800	2,800	Skin surface available for contact (cm^2/day)
	AFc = :	0.2	0.2	Soil to skin adherence factor (mg/cm^2)
	ABS = :	Chemical Specific		Absorption factor (unitless)
Inhalation	ETc = :	24	24	Exposure time (hours/day)
	PEF = :	1.10E+10		Particulate emission factor (m^3/kg)
	VF = :	Chemical Specific		Volatilization factor (m^3/kg)

CHEMICAL	**ABS**	**Cancer Slope Factor**			**Reference Dose**			**ADAF**	
		Oral ($(mg/kg/day)^{-1}$)	**Dermal ($(mg/kg/day)^{-1}$)**	**Inhalation ($(ug/m^3)^{-1}$)**	**Oral (mg/kg/day)**	**Dermal (mg/kg/day)**	**Inhalation (mg/m^3)**	**Ages 0 - 2**	**Ages 2 - 6**
Benzo(a)anthracene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	10	3
Benzo(a)pyrene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA	10	3
Benzo(b)fluoranthene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	10	3
Benzo(k)fluoranthene	0.13	7.3E-02	7.3E-02	1.1E-04	NA	NA	NA	10	3
Dibenzo(a,h)anthracene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA	10	3
Indeno(1,2,3-cd)pyrene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA	10	3
Aroclor-1260	0.14	2.0E+00	2.0E+00	5.7E-04	2.0E-05	2.0E-05	NA	1	1
Heptachlor Epoxide	0.1	9.1E+00	9.1E+00	2.6E-03	1.3E-05	1.3E-05	NA	1	1
Arsenic	0.03	1.5E+00	1.5E+00	4.3E-03	3.0E-04	3.0E-04	1.5E-05	1	1
Chromium VI	0	5.0E-01	2.0E+01	8.4E-02	3.0E-03	7.5E-05	1.0E-04	10	3

CHEMICAL	**Carcinogenic Intake Factors**			**Noncarcinogenic Intake Factors**		
	Oral (kg/kg/day)	**Dermal (kg/kg/day)**	**Inhalation (kg/m^3)**	**Oral (kg/kg/day)**	**Dermal (kg/kg/day)**	**Inhalation (kg/m^3)**
Benzo(a)anthracene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(a)pyrene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(b)fluoranthene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(k)fluoranthene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Dibenzo(a,h)anthracene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Indeno(1,2,3-cd)pyrene	5.84E-06	2.13E-06	3.99E-11	1.28E-05	4.65E-06	8.72E-11
Aroclor-1260	1.10E-06	4.30E-07	7.47E-12	1.28E-05	5.01E-06	8.72E-11
Heptachlor Epoxide	1.10E-06	3.07E-07	7.47E-12	1.28E-05	3.58E-06	8.72E-11
Arsenic	1.10E-06	9.21E-08	7.47E-12	1.28E-05	1.07E-06	8.72E-11
Chromium VI	5.84E-06	0.00E+00	3.99E-11	1.28E-05	0.00E+00	8.72E-11

CHEMICAL	**Soil Concentration**	
	Carcinogenic (mg/kg)	**Noncarcinogenic (mg/kg)**
Benzo(a)anthracene	0.17	NA
Benzo(a)pyrene	0.017	NA
Benzo(b)fluoranthene	0.17	NA
Benzo(k)fluoranthene	1.7	NA
Dibenzo(a,h)anthracene	0.017	NA
Indeno(1,2,3-cd)pyrene	0.17	NA
Aroclor-1260	0.33	1.1
Heptachlor Epoxide	0.078	0.79
Arsenic	0.56	22
Chromium VI	0.34	235

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE TWO OF TWO

CALCULATION OF AMBIENT AIR CONCENTRATION
SOURCE: U.S. EPA SOIL SCREENING GUIDANCE

Purpose: To calculate ambient air concentrations resulting from fugitive dust and volatilization from soil.

Relevant Equations:

$$Cair = Cs \times (1/PEF + 1/VF)$$

$$VF = \frac{Q/C \times (3.14 \times DA \times T)^{1/2} \times 10^{-4}\ m^2/cm^2}{2 \times pb \times DA} \qquad PEF = \frac{3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

$$DA = \frac{[(\theta a^{10/3} \times Di \times H + \theta w^{10/3} \times Dw)/n^2)]}{pb \times Kd + \theta w + \theta a \times H}$$

$$Csat = S/pb \times (Kd \times pb + \theta w + H \times \theta a)$$

INPUT PARAMTERS		
Parameter	**Value**	**Definition**
Q/C = :	73.95045	Inverse of mean conc. at center of source (g/m^2-s per kg/m^3).
T = :	9.5E+08	Exposure interval (seconds).
pb = :	1.5	Dry soil bulk density (g/cm^3).
ps = :	2.65	soil particle density (g/cm^3).
n = :	0.434	Total soil porosity (L_{pore}/L_{soil}).
θw = :	0.15	Water-filled soil porosity (L_{pore}/L_{soil}).
θa = :	0.284	Air-filled soil porosity (L_{air}/L_{soil}).
Di = :	Chemical specific	Diffusivity in air (cm^2/sec).
H' = :	Chemical specific	Dimensionless Henry's Law Constant.
Dw = :	Chemical specific	Diffusivity in water (cm^2/sec).
DA = :	Chemical specific	Apparent diffusivity (cm^2/sec).
Kd = :	Chemical specific	Soil-water partition coefficient (cm^3/g).
Koc = :	Chemical specific	Soil organic carbon partition coefficient (cm^3/g).
foc = :	0.006	Fraction organic carbon in soil (g/g).

Chemical	**Volatile**	**Chemical Properties**					**Intermediate Calculations**			
		Koc (cm^3/g)	**Di (cm^2/sec)**	**Dw (cm^2/sec)**	**S (mg/L)**	**H'**	**Kd (cm^3/g)**	**Da (cm^2/sec)**	**VF (m^3/kg)**	**Csat (mg/kg)**
Surface Soil										
Benzo(a)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(a)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(b)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(k)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Dibenzo(a,h)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Indeno(1,2,3-cd)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Aroclor-1260	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Heptachlor Epoxide	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Arsenic	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Chromium VI	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE ONE OF THREE)

SITE NAME: FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
EXPOSURE POINT: INDUSTRIAL OPERATIONS SITE
EXPOSURE SCENARIO: HYPOTHETICAL LIFELONG RESIDENTS
MEDIA: SURFACE SOIL
DATE: MARCH 15, 2013

THIS SPREADSHEET CALCULATES SCREENING LEVELS FOR EXPOSURES TO SOIL
VIA INCIDENTAL INGESTION, DERMAL CONTACT, AND INHALATION

RELEVANT EQUATIONS:

Carcinogens

$$PRG_{soil} = \frac{TCR}{Intake_{oral} \times CSF_{oral} + Intake_{derm} \times CSF_{derm} + EC_{air} \times IUR}$$

Mutagenic

$$PRG_{soil} = \frac{TCR}{Intake_{ages\ 0\text{-}2} \times ADAF_{ages\ 0\text{-}2} + Intake_{ages\ 2\text{-}6} \times ADAF_{ages\ 2\text{-}6} + Intake_{ages\ 6\text{-}16} \times ADAF_{ages\ 6\text{-}16} + Intake_{ages\ >\ 16} \times ADAF_{ages\ >16}}$$

Noncarcinogens

$$PRG_{soil} = \frac{THI}{\left(\frac{Intake_{oral}}{RfD_{oral}}\right) + \left(\frac{Intake_{derm}}{RfD_{derm}}\right) + \left(\frac{EC_{air}}{RfC}\right)}$$

$$Intake_{oral} = \frac{IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

$$Intake_{derm} = \frac{SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$$

$$EC_{air} = \frac{ET \times EF \times ED \times [1/PEF + 1/VF]}{AT \times 24\ hours/day}$$

INPUT ASSUMPTIONS:

	Parameter	Child Ages 0 - 2	Child Ages 2 - 6	Adult Ages 6 - 16	Adult Ages > 16	Definition
General	TCR =	1E-06				Target Cancer Risk
	THI =	1				Target Hazard Index
	EF =	350	350	350	350	Exposure Frequency (days/year)
	ED =	2	4	10	14	Exposure Duration (years)
	BW =	15	15	70	70	Body Weight (kg)
	ATc =	25,550				Averaging time for carcinogenic exposures (days)
	ATn =	730	1,460	3,650	5,110	Averaging time for noncarcinogenic exposures (days)
	CF =	1.0E-06				Conversion Factor (kg/mg)
	ADAF =	Chemical Specific				Age Dependent Adjustment Factor
Incidental Ingestion	IR =	200	200	100	100	Soil Ingestion Rate (mg/day)
	FI =	1	1	1	1	Fraction from contaminated source (unitless)
Dermal Contact	SA =	2,800	2,800	5,700	5,700	Skin surface available for contact (cm^2/day)
	AFc =	0.2	0.2	0.07	0.07	Soil to skin adherence factor (mg/cm^2)
	ABS =	Chemical Specific				Absorption factor (unitless)
Inhalation	ETc =	24	24	24	24	Exposure time (hours/day)
	PEF =	1.10E+10				Particulate emission factor (m^3/kg)
	VF =	Chemical Specific				Volatilization factor (m^3/kg)

CHEMICAL	ABS	Cancer Slope Factor			Reference Dose		
		Oral $(mg/kg/day)^{-1}$	Dermal $(mg/kg/day)^{-1}$	Inhalation $(ug/m^3)^{-1}$	Oral (mg/kg/day)	Dermal (mg/kg/day)	Inhalation (mg/m^3)
Benzo(a)anthracene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA
Benzo(a)pyrene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA
Benzo(b)fluoranthene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA
Benzo(k)fluoranthene	0.13	7.3E-02	7.3E-02	1.1E-04	NA	NA	NA
Dibenzo(a,h)anthracene	0.13	7.3E+00	7.3E+00	1.1E-03	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.13	7.3E-01	7.3E-01	1.1E-04	NA	NA	NA
Aroclor-1260	0.14	2.0E+00	2.0E+00	5.7E-04	2.0E-05	2.0E-05	NA
Heptachlor Epoxide	0.1	9.1E+00	9.1E+00	2.6E-03	1.3E-05	1.3E-05	NA
2,3,7,8-TCDD Equivalents	0.03	1.3E+05	1.3E+05	3.8E+01	7.0E-10	7.0E-10	4.0E-08
Arsenic	0.03	1.5E+00	1.5E+00	4.3E-03	3.0E-04	3.0E-04	1.5E-05
Chromium VI	0	5.0E-01	2.0E+01	8.4E-02	3.0E-03	7.5E-05	1.0E-04

CHEMICAL	Age Dependent Adjustment Factor			
	Ages 0 - 2	Ages 2 - 6	Ages 6 - 16	Ages >16
Benzo(a)anthracene	10	3	3	1
Benzo(a)pyrene	10	3	3	1
Benzo(b)fluoranthene	10	3	3	1
Benzo(k)fluoranthene	10	3	3	1
Dibenzo(a,h)anthracene	10	3	3	1
Indeno(1,2,3-cd)pyrene	10	3	3	1
Aroclor-1260	1	1	1	1
Heptachlor Epoxide	1	1	1	1
2,3,7,8-TCDD Equivalents	1	1	1	1
Arsenic	1	1	1	1
Chromium VI	10	3	3	1

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE TWO OF THREE)

SITE NAME: FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS
EXPOSURE POINT: INDUSTRIAL OPERATIONS SITE
EXPOSURE SCENARIO: HYPOTHETICAL LIFELONG RESIDENTS
MEDIA: SURFACE SOIL
DATE: MARCH 15, 2013

CHEMICAL	Carcinogenic Intake Factors			Noncarcinogenic Intake Factors		
	Oral (kg/kg/day)	Dermal (kg/kg/day)	Inhalation (kg/m^3)	Oral (kg/kg/day)	Dermal (kg/kg/day)	Inhalation (kg/m^3)
Benzo(a)anthracene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(a)pyrene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(b)fluoranthene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Benzo(k)fluoranthene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Dibenzo(a,h)anthracene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Indeno(1,2,3-cd)pyrene	6.71E-06	2.57E-06	9.46E-11	1.28E-05	4.65E-06	8.72E-11
Aroclor-1260	1.57E-06	6.92E-07	3.74E-11	1.28E-05	5.01E-06	8.72E-11
Heptachlor Epoxide	1.57E-06	4.94E-07	3.74E-11	1.28E-05	3.58E-06	8.72E-11
2,3,7,8-TCDD Equivalents	1.57E-06	1.48E-07	3.74E-11	1.28E-05	1.07E-06	8.72E-11
Arsenic	1.57E-06	1.48E-07	3.74E-11	1.28E-05	1.07E-06	8.72E-11
Chromium VI	6.71E-06	0.00E+00	9.46E-11	1.28E-05	0.00E+00	8.72E-11

CHEMICAL	Soil Concentration	
	Carcinogenic (mg/kg)	Noncarcinogenic (mg/kg)[1]
Benzo(a)anthracene	0.15	NA
Benzo(a)pyrene	0.015	NA
Benzo(b)fluoranthene	0.15	NA
Benzo(k)fluoranthene	1.5	NA
Dibenzo(a,h)anthracene	0.015	NA
Indeno(1,2,3-cd)pyrene	0.15	NA
Aroclor-1260	0.22	1.1
Heptachlor Epoxide	0.053	0.79
2,3,7,8-TCDD Equivalents	0.0000045	0.000051
Arsenic	0.39	22
Chromium VI	0.30	235

1 - Noncarcinogenic concentration is based on the child resident.

RISK ASSESSMENT SPREADSHEET - CALCULATION OF RISK-BASED CONCENTRATIONS FOR SOIL (PAGE THREE OF THREE)

CALCULATION OF AMBIENT AIR CONCENTRATION
SOURCE: U.S. EPA SOIL SCREENING GUIDANCE

Purpose: To calculate ambient air concentrations resulting from fugitive dust and volatilization from soil.

Relevant Equations:

$$Cair = Cs \times (1/PEF + 1/VF)$$

$$VF = \frac{Q/C \times (3.14 \times DA \times T)^{1/2} \times 10^{-4}\ m^2/cm^2}{2 \times pb \times DA} \qquad PEF = \frac{3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

$$DA = \frac{[(\theta a^{10/3} \times Di \times H + \theta w^{10/3} \times Dw)/n^2)]}{pb \times Kd + \theta w + \theta a \times H}$$

$$Csat = S/pb \times (Kd \times pb + \theta w + H \times \theta a)$$

INPUT PARAMTERS		
Parameter	**Value**	**Definition**
Q/C = :	73.95045	Inverse of mean conc. at center of source (g/m^2-s per kg/m^3).
T = :	9.5E+08	Exposure interval (seconds).
pb = :	1.5	Dry soil bulk density (g/cm^3).
ps = :	2.65	soil particle density (g/cm^3).
n = :	0.434	Total soil porosity (L_{pore}/L_{soil}).
θw = :	0.15	Water-filled soil porosity (L_{pore}/L_{soil}).
θa = :	0.284	Air-filled soil porosity (L_{air}/L_{soil}).
Di = :	Chemical specific	Diffusivity in air (cm^2/sec).
H' = :	Chemical specific	Dimensionless Henry's Law Constant.
Dw = :	Chemical specific	Diffusivity in water (cm^2/sec).
DA = :	Chemical specific	Apparent diffusivity (cm^2/sec).
Kd = :	Chemical specific	Soil-water partition coefficient (cm^3/g).
Koc = :	Chemical specific	Soil organic carbon partition coefficient (cm^3/g).
foc = :	0.006	Fraction organic carbon in soil (g/g).

Chemical	**Volatile**	**Chemical Properties**					**Intermediate Calculations**			
		Koc (cm^3/g)	**Di (cm^2/sec)**	**Dw (cm^2/sec)**	**S (mg/L)**	**H'**	**Kd (cm^3/g)**	**Da (cm^2/sec)**	**VF (m^3/kg)**	**Csat (mg/kg)**
Surface Soil										
Benzo(a)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(a)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(b)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Benzo(k)fluoranthene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Dibenzo(a,h)anthracene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Indeno(1,2,3-cd)pyrene	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Aroclor-1260	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Heptachlor Epoxide	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
2,3,7,8-TCDD Equivalents	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Arsenic	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA
Chromium VI	N	NA	NA	NA	NA	NA	NA	NA	1E+99	NA

PRELIMINARY REMEDIATION GOALS
INDUSTRIAL OPERATIONS AREA
FORMER NAS SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Receptor: Residents

Chemical	USEPA RSL[1] (mg/kg)	Target Cancer Risk Level[2]			Hazard Index = 0.1 (mg/kg)[2]	Hazard Index = 1 (mg/kg)[2]
		10^{-6} (mg/kg)	10^{-5} (mg/kg)	10^{-4} (mg/kg)		
Soil						
Benzo(a)anthracene	0.15	0.15	1.5	15	NA	NA
Benzo(a)pyrene	0.015	0.015	0.15	1.5	NA	NA
Benzo(b)fluoranthene	0.15	0.15	1.5	15	NA	NA
Benzo(k)fluoranthene	1.5	1.5	15	150	NA	NA
Chrysene[3]	15	NA[3]	NA[3]	NA[3]	NA	NA
Dibenzo(a,h)anthracene	0.015	0.015	0.15	1.5	NA	NA
Indeno(1,2,3-cd)pyrene	0.15	0.15	1.5	15	NA	NA
Aroclor-1260[4]	0.22	0.22	2.2	22	0.11	1.1
Heptachlor Epoxide	0.053	0.053	0.53	5.3	0.079	0.79
2,3,7,8-TCDD Equivalents	0.0000045	0.0000045	0.000045	0.00045	0.0000051	0.000051
Arsenic	0.39	0.39	3.9	39	2.2	22
Chromium[5]	0.29	0.30	3.0	30	23	230
Lead[6]	400	NA	NA	NA	NA	NA

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November, 2012 [Cancer benchmark value = 1E-06, Hazard index (HI) = 1.0]. The RSL for residential soil is presented.
2 - Target cancer risk levels are based on lifelong residents. Target hazard indices are based on child residents.
3 - Chrysene is not retained as a COC because it was not selected as a residential COPC in soil.
4 - The HI was calculated using non-cancer toxicity criteria for Aroclor-1254.
5 - Values are for hexavalent chromium.
6 - The preliminary remediation goal for lead is 400 mg/kg based on the Integrated Exposure Uptake Biokinetic (IEUBK) Model (U.S. EPA, 1994, 2009b).